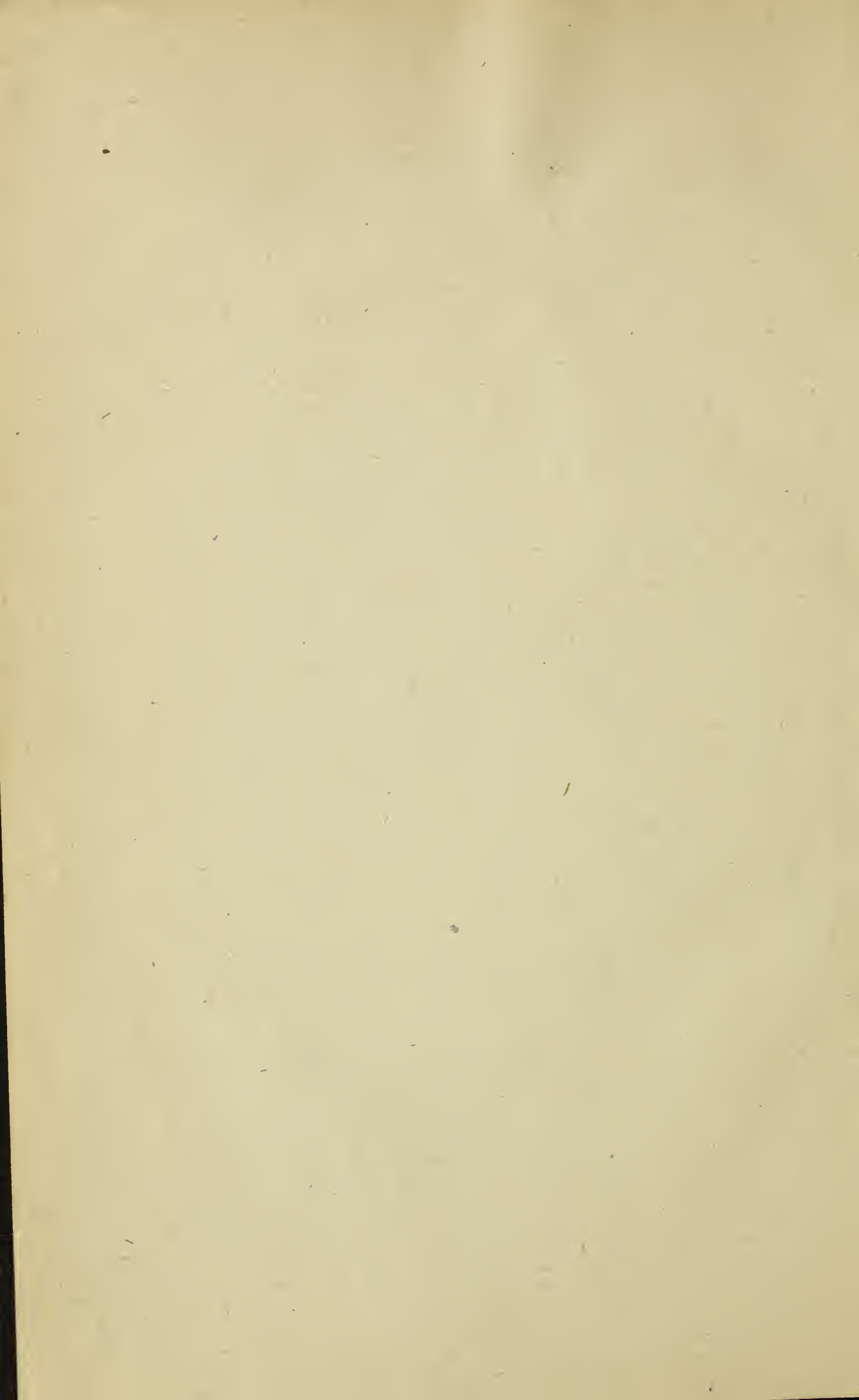


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BEFORE THE
HON. PHILIP F. THOMAS,
COMMISSIONER OF PATENTS.

IN THE MATTER OF THE APPLICATION

OF

+ 8018.115

ELIAS HOWE, JR.,

FOR AN EXTENSION OF HIS PATENT

FOR

SEWING MACHINES.

TESTIMONY TAKEN ON THE PART OF THE APPLICANT,

ELIAS HOWE, JR.

NEW YORK:

WM. W. ROSE, JOB PRINTER, 68 CEDAR STREET,

OPPOSITE THE POST OFFICE.

1860.

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U.S. PATENT OFFICE

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Before the Honorable Commissioner of Patents.

IN THE APPLICATION

of

ELIAS HOWE, Jr., to the Commissioner
of Patents of the United States, for
an Extension of his Patent for a
Sewing Machine Invention, dated
September 10th, 1846.

Monday, July 23d, 1860.

Mr. Gifford present, on behalf of the applicant, Elias Howe, Jr., and examination adjourned to 10 A. M., the 24th inst.

Tuesday, July 24th, 1860.

Mr. Gifford present, on behalf of the applicant, Elias Howe, Jr., and Samuel Blatchford, Esq., on behalf of George B. Sloat, and Williams and Orvis, opponents of said extension.

SEWALL GLEASON, being duly sworn, doth depose and say, in answer to interrogatories proposed to him by George Gifford, Esq., counsel for the applicant, Elias Howe, Jr., as follows, viz. :

First Interrogatory.—What is your name, residence and occupation?

Answer. Sewall Gleason, Westville, Franklin County, State of New-York, and am in mechanical business.

Second Interrogatory.—Did you know Walter Hunt ; and, if yea, when did you first become acquainted with him ?

A. I did, in the fall of 1836.

Third Interrogatory.—Did you ever assist him in getting up a sewing machine ; and, if yea, when did you first commence with him ?

A. I did, in 1852.

Fourth Interrogatory.—How many sewing machines did you assist Mr. Hunt in building, and at what time, in 1852, did you commence on them, and when were they completed ?

A. I assisted him in building three. I commenced in December, 1852 ; quit in July, 1853. The machines were commenced about the time I commenced with him, and they were completed a little before I left him.

Fifth Interrogatory.—State whether or not Mr. Hunt employed you to assist in contriving the arrangement of parts of the machine.

A. It was always understood, when Mr. Hunt hired me, that I was to consult and advise with him about new machinery he was getting up, as well as to help make it.

Sixth Interrogatory.—Had you, previously to his employing you, been engaged in inventing yourself, and was that known to Mr. Hunt ?

A. I had been engaged in inventing myself, and it was known to Mr. Hunt.

Seventh Interrogatory.—You have mentioned that you assisted Mr. Hunt in building three sewing machines—please state whether the first of them was completed before another was commenced, and whether the second was completed before the third was commenced. Please explain about that.

A. The first was completed before another was commenced; second was completed, or nearly so, before the third was commenced.

Eighth Interrogatory.—Did you understand what the first one was being made for—that is, whether it was made to be used on a trial—and, if yea, where?

A. I understood it was being made to be used on a trial in Boston.

Ninth Interrogatory.—State whether Mr. Singer, or his partner, Mr. Clark, was frequently in conversation with Mr. Hunt while that machine was being made, and whether Mr. Hunt had difficulty in forming it.

A. Mr. Clark was frequently in conversation with Mr. Hunt, at Mr. Hunt's shop, while it was being made. Mr. Hunt had difficulty in forming the machine.

Tenth Interrogatory.—Did Mr. Hunt, at that time, have access to the factory of I. M. Singer & Co., where sewing machines were being manufactured?

A. Mr. Hunt was several times in Messrs. Singer & Clark's store where their machines were being sold.

Eleventh Interrogatory.—You have stated that Mr. Hunt had difficulty in forming that machine, please to state what kind of difficulty he had.

A. He didn't seem to have planned the whole machine through, and apparently had to invent as he went along, or alter.

Twelfth Interrogatory.—Could Mr. Hunt, according to what you saw, have given a description of that sewing machine at the time he commenced it, which would have enabled a machinist to have constructed it from such description?

A. I don't think he could, from what I saw.

Thirteenth Interrogatory.—State as to whether he made progressively plans or drawings, and as to whether he changed and altered them from time to time, as the machine progressed?

A. He did make plans of parts of the machine at different times and altered some of them.

Fourteenth Interrogatory.—Why did he alter them? And state what he said, if any thing, as to his getting the machine so it would sew.

A. He altered them because they would not answer his purpose, and produce the motion and effect he wanted. He said he was bound to get the machine so that it would sew.

Fifteenth Interrogatory.—Did you co-operate with him in contriving it—the machine?

A. Mr. Hunt frequently consulted with me or advised with me, when studying upon portions of the machine where he seemed to be perplexed.

Sixteenth Interrogatory.—How did the second machine of the three machines which you made correspond with the first one, and what was the second one made for?

A. The second machine was a *fac simile* of the first, and made for the Patent Office, Washington.

Seventeenth Interrogatory.—In making the third of said machines, did you have any parts of an old machine?

A. We did.

Eighteenth Interrogatory.—Did you endeavor to make the third machine conform to the parts of old machine?

A. I did.

Nineteenth Interrogatory.—Look at parts of an old machine now shown you, and marked by the Commissioner Exhibit A., R. E. Stilwell, and state whether they are the parts which you had in constructing the third of said machines, and which guided you therein as far as they were capable of doing so?

A. It is the old machine that I had for a guide in making the third machine, and the parts appear to be the same now that they were at that time.

Twentieth Interrogatory.—State whether Mr. Hunt had difficulty in constructing a machine having parts to conform

to these old parts, and whether there were any of those old parts that Mr. Hunt did not know the use or intention of?

A. He had difficulty. There were some trifling parts that he did not appear to understand the use or intention of.

Twenty-first Interrogatory.—Did any one, and if yea, who, work with you for Mr. Hunt on those machines?

A. There did. Daniel G. Rollins worked for him, and there was another one, but I do not recollect his name.

Twenty-second Interrogatory.—Mention some of the differences between the first machine which you made or worked, and the third one?

A. The mode of taking up the thread for the shuttle to pass through, the plan of moving the shuttle, the movement of the needle bar, the tension on the thread, the mode of feeding—those are among the most particular.

Twenty-third Interrogatory.—On what parts or in what parts did Mr. Hunt find difficulty in making machine when using those old parts for a guide, as far as they could furnish any guide?

A. He found difficulty in getting up a shaft for moving the shuttle bar. He found difficulty in arranging to govern the shuttle bar, and in arranging the cams on the main shaft for producing every motion made by it. He found difficulty in arranging the lower lever for taking up the thread to form the loop for the shuttle to pass through. He found difficulty in making that part to produce tension on the thread, or draw the stitch.

Twenty-fourth Interrogatory.—State whether or not you aided him in contriving ways of getting out of the difficulties or overcoming the difficulties mentioned in your last answer?

A. He frequently consulted with me, and I frequently made suggestions in relation to the work.

Twenty-fifth Interrogatory.—Did he adopt your suggestions, or were your suggestions adopted?

A. In some measure they were.

(Signed,)

SEWALL GLEASON.

And in answer to cross-interrogatories by Samuel Blatchford, Esq., counsel for Geo. B. Sloat, and for Williams and Orvis, opponents of said extension, he says as follows :

First Cross-Interrogatory.—Were not the three machines to which you have referred in your direct examination as being made by Mr. Hunt, completed so that sewing was done with them ?

A. They were.

Second Cross-Interrogatory.—Did you not act under Mr. Hunt's instructions and directions in making those machines ?

A. I did.

Third Cross-Interrogatory.—You say, in answer to your eleventh direct interrogatory, that Mr. Hunt apparently had to invent as he went along, in making the first machine. What parts of the machine had you in your mind in giving that answer, as those which Mr. Hunt apparently had to invent ?

A. There was the feed motion and the forceps, or that part producing the tension on the thread ; also the motion of the needle bar, or the rocking shaft. I mean more particularly the cam on the main shaft, and the cam or cog on the rocking shaft connected with it.

Fourth Cross-Interrogatory.—What sort of feed-motion did said first machine have ?

A. A lever, two hands, with a ratchet-wheel ; a hook on the upper one ; that is as near as I can give a description in words.

Fifth Cross-Interrogatory.—Was or is such feed-motion known to you by any name in particular ?

A. No ; I have no name in particular for it.

Sixth Cross-Interrogatory.—What was the particular difficulty that Mr. Hunt had on that first machine in regard to the cam, and the appendages to the rocking shaft, for getting motion to the needle-bar ?

A. The great difficulty was in getting the shape of a cam to produce the motion required.

Seventh Cross-Interrogatory.—The use of a cam of some shape for giving motion to the needle-bar was the idea with which Mr. Hunt started in each of the three machines, was it not?

A. So far as I know, it was.

Eighth Cross-Interrogatory.—What kind of feed-motion did the second machine have?

A. The same as the first; the two machines were alike.

Ninth Cross-Interrogatory.—Please state how the mode of taking up the thread for the thread for the shuttle to pass through differed in the first and the third machines.

A. In the third machine it was taken up by a hook; in the first machine it was not taken up at all, the needle fell back and gave it a little slack.

Tenth Cross-Interrogatory.—How was the thread taken up for the shuttle to pass through in the old machine, Ex. A.?

A. I don't know. There is no trace in Exhibit A. of it, and that was one of the difficulties we had in reproducing the old machine.

Eleventh Cross-Interrogatory.—How did the first and third machines differ in the plan of moving the shuttle?

A. In the third machine it was moved by a spring and a cam, and in first machine moved by a solid cam on the shaft, striking rollers attached to the shuttle-bar, each once in a revolution of the shaft, so as to move the bar backward and forward at every revolution.

Twelfth Cross-Interrogatory.—How was the shuttle moved in Exhibit A.?

A. I don't know how it was moved; those parts are missing.

Thirteenth Cross-Interrogatory.—How did the first and third machines differ in the movement of the needle-bar?

A. The movements were the same ; that is, the motions were the same ; there was a difference in the cams that produced the motion. In the third the needle-bar was moved by a single cam turned back by a spring ; in the first, moved by a double cam, with a spring also to turn it back.

Fourteenth Cross-Interrogatory.—How was the needle-bar moved in Ex. A. ?

A. There is a pin now in the needle-bar. By what it was acted upon I can't tell, because the parts are missing.

Fifteenth Cross-Interrogatory.—How did the first and third machines differ in the mode of making tension on the thread ?

A. The tension in the first was made by the spring forceps, on the third by a kind of adjustable clamp regulated by a screw.

Sixteenth Cross-Interrogatory.—How was the tension on the thread made in Ex. A. ?

A. I don't know ; the parts were missing when the third machine was made, and they are missing now.

Seventeenth Cross-Interrogatory.—What kind of feed motion did the third machine have ?

A. A ratchet, lever and a hand.

Eighteenth Cross-Interrogatory.—How did the first and third machines differ in the feed motions ?

A. The first machine, the feed motion was produced by a ratchet wheel and gear ; the third by a straight ratchet.

Nineteenth Cross-Interrogatory.—What sort of feed motion has Exhibit A. ?

A. A straight ratchet.

Twentieth Cross-Interrogatory.—Are the parts which produced the feed in Exhibit A. now contained therein ?

A. A part of them.

Twenty-first Cross-Interrogatory.—Which part ?

A. The ratchet, lever and hand.

Twenty-second Cross-Interrogatory.—What parts do you refer to as missing?

A. The parts that acted upon the lever.

Twenty-third Cross-Interrogatory.—In building the third machine, did you copy the parts that you found in Exhibit A. as you found them?

A. As near as I could.

Twenty-fourth Cross-Interrogatory.—The difficulties, then, to which you referred in making the third machine were difficulties in arranging parts that did not and do not appear in Exhibit A.?

A. They were, principally.

Twenty-fifth Cross-Interrogatory.—What mechanical business have you been engaged in, and for what length of time, respectively, and in what are you now engaged?

A. I have been engaged in building cotton machinery and woolen machinery formerly for years; have been a good deal engaged in making patterns and models for the Patent Office in Washington, and in getting up new machinery of various kinds the last twenty-five years. I am not now engaged in any mechanical business steadily. I am now getting a model of my own for the Patent Office by odd spells.

Twenty-sixth Cross-Interrogatory.—Where were the three sewing machines made?

A. Corner Hudson and Charles streets. The shop was in New-York city.

Twenty-seventh Cross-Interrogatory.—Do you know what was done with, or what became of the three machines?

A. One was sent to Boston, one to Washington, and remained in the city, as I have been informed in relation to the whole of them.

(Signed,) SEWALL GLEASON.

Subscribed and sworn to before me, }
this 24th July, 1860. }

R. E. STILWELL,
U. S. Commissioner.

DANIEL G. ROLLIN, being duly sworn, doth depose and say, in answer to interrogatories proposed by George Gifford, Esq., counsel for the applicant, Elias Howe, Jr., as follows, viz. :

First Interrogatory.—What is your name, your residence and occupation ?

A. Daniel G. Rollin, No. 103 West 41st-street, city of New-York, and am a machinist.

Second Interrogatory.—Did you know Walter Hunt, and did he ever employ you to work upon sewing machines ; and if yea, when did you commence with him, and what time did you leave ?

A. I knew Walter Hunt ; he did employ me to work on sewing machines. I commenced with him about January, 1853, on sewing machines, and got through with him on sewing machines in August, same year. I was with him for four years afterwards.

Third Interrogatory.—How many sewing machines did he make in that time ?

A. He made four ; but one was the needle-feed ; that was the last one.

Fourth Interrogatory.—Have you been present, and heard the testimony given to-day ?

A. I have.

Fifth Interrogatory.—Were the three machines which he states he helped Mr. Hunt to make the first three of the four which you say he made ?

A. They were.

Sixth Interrogatory.—Was Gleason at work there when you commenced with Hunt, and did he remain until the three machines were finished ?

A. He was there when I commenced at that time, and remained there until the three machines were finished.

Seventh Interrogatory.—State whether, during that time, you heard Mr. Hunt speak of having forgotten what he had known about sewing machines, and what he said ?

(Counsel for opponents objects to this question so far as it calls for any thing said by Mr. Hunt, on the ground that this evidence is hearsay testimony, and incompetent as against said opponents.)

A. I frequently heard him say that he had entirely forgotten many of the parts of the old machine.

Eighth Interrogatory.—State whether he had difficulties in constructing machine so as to have some of the parts to correspond with the old parts of Exhibit A.?

A. He expressed himself as having a good deal of difficulty in producing the deficient parts of Exhibit A., to make them work with the parts shown in Exhibit A.

Ninth Interrogatory.—State whether you heard him consult Dr. Gleason as to such difficulties, or any of them?

A. I frequently heard Dr. Gleason called the attention of Mr. Hunt to different points on Exhibit A., which had seemed to combine some mechanical motion, or part, and ask Mr. Hunt what belonged there. His answer would be, "Doctor, I don't know, but we must contrive something. The machine must be made to work." This was a frequent occurrence.

(Counsel for said opponents objects to so much of said answer as states what was said by Mr. Hunt, on same grounds before mentioned.)

Tenth Interrogatory.—How far had they advanced with the first machine when you commenced to help him?

A. The parts were all put together, and he commenced to form the stitch and try and sew.

Eleventh Interrogatory.—Did any one help Hunt on the first machine besides Dr. Gleason, and before you commenced to help him, and if yea, where was he from, that is, from what shop?

A. Mr. Hunt informed me there was such a man helped him a short time, from Singer & Clark's shop. I afterwards saw the same man at Singer & Clark's factory. Am not

able to call his name, as it was a German name and hard to remember.

(Counsel for opponents enters the same objection as before as to what was said by Mr. Hunt.)

Twelfth Interrogatory.—How was it as to Mr. Clark's being in Hunt's shop and conferring with him upon the subject of the machine? Please state if you know.

A. Mr. Clark was there frequently, and had conversations with Mr. Hunt in relation to the progress of the machine.

Thirteenth Interrogatory.—What confidence did Mr. Hunt appear to have in the skill and ingenuity of Dr. Gleason?

(Question objected to by counsel for opponents as utterly incompetent and irrelevant, and as calling for appearances and sympathies instead of facts and acts, and as necessarily requiring the witness to state his inferences from facts, instead of stating the facts, leaving the inferences to be drawn by the tribunal before whom this matter is pending.)

A. Mr. Hunt frequently expressed himself that he considered the Doctor a capable and ingenious mechanic, and one of considerable originality of ideas as an inventor, and as such, I knew him to have Mr. Hunt's confidence, as I also had.

Fourteenth Interrogatory.—What was done with second of those three machines?

A. It was sent to Washington, to the Patent Office.

Fifteenth Interrogatory.—Have you seen it recently, and where?

A. I saw it in the Patent Office last week, on Wednesday.

Sixteenth Interrogatory.—How does that machine correspond with the first one which you have mentioned you helped Mr. Hunt to make, or helped to finish?

A. It is a *fac simile* of the same in form; the clamps were made of brass instead of wood, as in the first one.

(Signed,)

DANIEL G. ROLLIN.

Being cross-examined by Samuel Blatchford, Esq., counsel for opponents, he says :

First Cross-Interrogatory.—I suppose the old machine referred to by you in your answer to seventh direct interrogatory, means Exhibit A., now before you, and in regard to which the witness Gleason testified ?

A. I meant to be understood in that answer, that it related entirely to his first experiments in sewing machines.

Second Cross-Interrogatory.—What, if any thing, did you have to do with the construction of the first machine, or of any of its parts, independently of adjusting them so as to secure their smooth working ?

A. I made a new shuttle and spool, or bobbin, which produced a more accurate tension on the shuttle thread, which was done by adjustable pivots, placed inside of the arbor of the spool ; also, detent springs, placed in the shuttle race, that caught and held the shuttle at each throw. Those are all the parts I made new.

Third Cross-Interrogatory.—When you first saw the first machine, did it not have a shuttle and a spool, or bobbin, together with all the other parts necessary to make it a sewing machine ?

A. Yes, you might say a sewing machine, but not a perfect sewing machine.

Fourth Cross-Interrogatory.—In what particulars do you speak of such first machine as not then perfect ? Do you mean not perfect, so as to sew at all, then ; or not so perfect as to sew as perfectly as it would sew after the adjustments were made, which you say you made ?

A. I do not say that it would not sew at all, but that you could not depend upon sewing a seam of three or four inches even, without missing stitches ; but after making those adjustments, the machine worked as perfectly as such a machine could work.

(Signed,)

DANIEL G. ROLLIN.

Direct resumed by Mr. Gifford :

First Interrogatory.—In your answer to the seventh interrogatory in chief, you state you frequently heard Mr. Hunt say that he had entirely forgotten many of the parts of the old machine. And in your answer to the first cross-interrogatory, that you meant by that answer that what Hunt said related entirely to his first experiments in sewing machines. Do you mean that it related to all his past experiments?

A. So I understood him. ,

(Signed,)

DANIEL G. ROLLIN.

Re-cross resumed by Mr. Blatchford :

First Interrogatory.—Do you mean to say, Mr. Rollin, that you heard Mr. Hunt frequently say that he had entirely forgotten all his former experiments in sewing machines, and all the parts of all the sewing machines that he had formerly made.

A. I think, sir, there is some difference between the words “of all” and “many.” I thought it was well understood here that I hadn’t expressed myself in any such way. I answer as I did first, that I heard him say he had entirely forgotten many of the parts of the old machines.

Second Interrogatory.—Be good enough to read the first re-direct interrogatory and your answer to it, and say whether you meant by that answer to convey the idea that Mr. Hunt had said that he had forgotten all his past experiments; an interpretation of which I think you will, on reading that interrogatory and answer, see that it is susceptible.

A. I did not mean to convey that idea.

(Signed,)

DANIEL G. ROLLIN.

Subscribed and sworn to before me, {
this 24th day of July, 1860. }

(Signed,)

RICHARD E. STILLWELL.

Adjourned to 10 A. M., the 25th inst.

Wednesday, July 25th, 1860.

Mr. Gifford present, on behalf of the applicant, Elias Howe, Jr. Mr. Blatchford present, on behalf of George B. Sloate and Williams and Orvis, opponents. Adjourned to 10 A. M., 26th inst.

Thursday, July 26th, 1860.

Mr. Gifford present, on behalf of the applicant. Mr. Blatchford present, on behalf of Geo. B. Sloate and Williams and Orvis, opponents.

JACOB H. LEROW, being duly sworn, doth depose and say, in answer to interrogatories proposed to him by Geo. Gifford, Esq., counsel for the applicant, Elias Howe, Jr., as follows, viz.:

First Interrogatory.—What is your name, your residence and occupation?

A. Jacob H. Lerow; residence, Newark, N. J., and am agent for I. M. Singer & Co., for the sale of Singer's Sewing Machines.

Second Interrogatory.—Look at the old pieces of a machine now shown you by the Commissioner, and marked Exhibit A., R. E. Stillwell, and say if you ever searched for and found those remains, and if yea, where did you find them, and when?

A. I do recognise them, Sir, except the clamps. I searched for them and found them, all but the clamps. I found them in an attic of a building in Gold-street, in New-York city, with a lot of what I consider rubbish, pieces and parts of machines, and other dirty stuff. It was in the summer or autumn of 1850, that I found them.

Third Interrogatory.—What did you do with those remains, which you found?

A. I took them to Walter Hunt; he recognised and explained them to me, and he marked his initials on with a chisel. I then took them in a box to A. B. Ely, in the city of Boston.

Fourth Interrogatory.—For what purpose did you hunt them up and take them to Mr. Ely?

A. For the purpose of using them as testimony in a suit pending at time between Elias Howe, Jr., and, I think, Bradford. It was against the Lerow and Blodget Machine, and was defended by Lerow and Blodget.

Fifth Interrogatory.—Was that Mr. Ely one of the counsel for the Lerow and Blodget Machine?

A. He was.

Sixth Interrogatory.—What relation are you to the Mr. Lerow, of Lerow & Blodget, and what was his full name?

A. I am a cousin; his name is John A. Lerow.

Mr. Blatchford waives the cross-examination of the witness.

JACOB H. LEROW.

Subscribed and sworn to, before me, }
this 26th day of July, 1860. }

R. E. STILLWELL,
U. S. Commissioner.

JOHN P. BOWKER, Jr., being duly sworn, doth depose and say, in answer to interrogatories proposed to him by Geo. Gifford, Esq., on behalf of the applicant:

First Interrogatory.—What is your name, residence and occupation?

A. John P. Bowker, Jr.; residence in Dorchester, Massachusetts, and am in the sewing machine business. I do business in Boston.

Second Interrogatory.—Did you know of an application in the year 1853, by Walter Hunt, for a patent for alleged invention in sewing machines?

A. I did.

Third Interrogatory.—Who bore the expenses of that ap-

plication, and about what did it cost, and the proceeding therein on the part of the applicant, cost?

A. I bore the expenses, although it went in the name of Bowker & Morey. It cost \$1,124 99.

Fourth Interrogatory.—How was the patent to be divided, in case Mr. Hunt obtained one?

A. Walter Hunt was to own one-half; the final transfer of the other half was to belong to me, with a free license to L. M. Singer & Co. reserved.

Fifth Interrogatory.—What was paid to Walter Hunt for the one-half which you was to own?

A. Two hundred and fifty dollars was paid to George S. Jackson to be paid to Walter Hunt; and we always understood that he received it.

Mr. Blatchford waives cross-examination of witness.

JOHN P. BOWKER, Jr.

Subscribed and sworn to before me, }
this 26th day of July, 1860. }

R. E. STILLWELL,
U. S. Commissioner.

SMITH GARDINER, being duly sworn, doth depose and say, in answer to interrogatories proposed to him by George Gifford, Esq., on behalf of the applicant:

First Interrogatory.—What is your name, your residence and occupation?

A. Smith Gardiner; reside in New-York city, and I am a manufacturer.

Second Interrogatory.—Did you know Walter Hunt?

A. Yes, Sir.

Third Interrogatory.—Did you, in the fall of 1839, have a conversation with him about his having attempted to get up a sewing machine?

A. Yes, Sir.

Fourth Interrogatory.—What did he say about it in that conversation?

Counsel for opponents objects to testimony as to what was said by Mr. Hunt, being hearsay and incompetent.

A. He said that he attempted to make a sewing machine ; that he worked a considerable length of time at it—I forget how long—and that he succeeded so far as to make one that did sew a little, but that he never perfected it, and disposed of it, sold it, or gave it away, and that it was of no practical utility.

Fifth Interrogatory.—Did you inquire of him how it was made ; and if yea, what did he answer?

Same objection as before.

A. I did inquire, and he said he could not recollect, but that he had a general recollection ; he recollected that he used the shuttle ; he recollected that much.

Sixth Interrogatory.—Did you inquire of said Hunt why he did not go on and perfect his machine ; and if yea, what did he answer?

Same objection as before.

A. I did. He answered that he found that it was going to require a good deal of time to do it, and the expenditure of a good deal of money, and that he hadn't either to spare ; that he hadn't time to devote to it, or money to spend, and that he had other matters or inventions that he considered of more importance, and therefore disposed of it.

SMITH GARDINER.

Mr. Blatchford waives cross-examination of the witness.

Subscribed and sworn to before me, }
this 26th day of July, 1860, }

R. E. STILLWELL,
U. S. Commissioner.

Adjourned to 10 A. M. the 27th instant.

IN THE MATTER OF THE APPLICATION

of

ELIAS HOWE, Jr., for an Extension of
his Patent for Improvements in
Sewing Machines, dated September
10th, 1846.

*Before the Honor-
able Commissioner
of Patents.*

City and County of New-York, ss. :

On this 18th day of July, 1860, at 10 o'clock, A. M., pursuant to the original notice hereto annexed, Charles M. Keller, Esq., of counsel for said Howe, appeared before me, Horace Andrews, a Commissioner of Deeds in and for the City and County of New-York, at my office, and at the same time also appeared Samuel Blatchford, Esq., of counsel for parties opposing such extension, and the taking of testimony on the part of said Howe was then, by consent of counsel, adjourned to July 19th, 1860, at 10 o'clock.

Attest,

HORACE ANDREWS,

Comm'r of Deeds.

New-York, July 19th, 1860, 10 A. M.

The taking of testimony on behalf of said Howe in the above matter adjourned to July 20th, 1860, at 10 o'clock.

Attest,

HORACE ANDREWS,

Comm'r of Deeds.

New-York, July 20th, 1860, 10 A. M.

The taking of testimony on behalf of said Howe in the above matter further adjourned to July 23d, 1860, at 10 o'clock.

Attest,

HORACE ANDREWS,
Comm'r of Deeds.

New-York, July 23d, 1860, 10 o'clock, A. M.

George Gifford, Esq., of counsel for said Howe, appeared, pursuant to adjournment last noted, and the taking of testimony on behalf of said Howe was then further adjourned to July 24th, 1860, at 10 o'clock.

Attest,

HORACE ANDREWS,
Comm'r of Deeds.

New-York, July 24th, 1860, 10 o'clock, A. M.

Pursuant to adjournment last noted, Causten Brown, Esq., appeared for said Howe, and Samuel Blatchford, Esq., for opponents of said application; and thereupon the examination of witnesses in behalf of said Howe was commenced, as follows:

AMASA B. HOWE, being duly sworn, doth depose and say, in answer to interrogatories proposed to him by Causten Brown, Esq., of counsel for said Howe, as follows:

First Interrogatory.—What is your name, age, residence and occupation?

A. Amasa B. Howe; residence, New-York city; am engaged in the manufacture and sale of sewing machines. Age 42. I manufacture sewing machines according to the Howe Patent; am one of the licensees of Elias Howe, Jr.

Second Interrogatory.—Will you state fully what pecuniary interest, if any, you have in the result of this application?

A. I am not aware that I have any.

Third Interrogatory.—Are you related to the petitioner, and how?

A. I am his brother.

Fourth Interrogatory.—Where did you reside from 1840 to 1845?

A. In Louisiana.

Fifth Interrogatory.—Where did you next reside, and when did you move there?

A. I left Louisiana the first day of June, 1845, and arrived in Cambridgeport, Mass., about the first of July.

Sixth Interrogatory.—How was your brother Elias occupied when you removed to Cambridgeport, and where did he then live?

A. I found him living with Mr. George Fisher, in Cambridgeport; he was occupied then upon the construction of a sewing machine, and at that date had an operating sewing machine constructed.

Seventh Interrogatory.—What were your brother's circumstances at that time?

A. He had a wife and two or three children, and his circumstances or means were rather limited. He had, for several years previous to that, supported himself as a mechanic.

Eighth Interrogatory.—How was he getting his living when you found him at this time in Cambridgeport?

A. He was living upon money and means furnished by Mr. Fisher, principally—Mr. George Fisher.

Ninth Interrogatory.—Is the machine you speak of now in existence, the machine which your brother had when you arrived at Cambridgeport, and where is it, and what is its condition as to efficiency, &c.?

A. It is in existence, in his possession, in New-York city; I have frequently had it in my possession from my first seeing it, and had it in my possession yesterday, and it is now in good working order and condition.

Tenth Interrogatory.—Do you remember any particular sewing work which was done upon it at about the time of your arrival at Cambridgeport, and when and what sort of work it was, and how it was done; if so, please state fully?

A. Shortly after my arrival, two suits of clothes of fine broadcloth, were made by the machine. The work was perfectly well done; all the seaming and stitching was done by the machine. This work was done in July or August, 1845.

Eleventh Interrogatory.—What became of these two suits?

A. They were worn by Mr. Fisher and my brother; they were worn that year and the next year, and were worn out. My brother had his suit, or the remnants of it, in his possession for some length of time after that; I don't know what became of them.

Twelfth Interrogatory.—What other sewing for use, if any, was done upon the machine within your knowledge, and when?

A. The machine was taken to the Quincy Hall Clothing Manufactory, in the following winter, and was operated there daily, for some two weeks, in a room where some twenty persons were employed in sewing. When these operatives had seams that they wished to have sewed, all the coat seams, they brought them to this machine to be sewed. I mean that each one of these operatives brought a part of their work from time to time, to be done on this machine, and that the machine did it and even sewed on plaited coat skirts to the bodies of the coats.

I took a business coat, in the spring or summer of 1846, which I purchased at Quincy Hall, and ornamented it with rows of stitching by this machine, around the sleeves, the two sides in front, the bottom and the collar. I had this coat in my possession some three years, and finally lost it.

Thirteenth Interrogatory.—What was the quality of the sewing done by the machine at Quincy Hall, and upon your business coat?

A. The quality was good, and approved of by every person who saw it.

Fourteenth Interrogatory.—How well did the sewing wear which was done by that machine upon your brother's and Mr. Fisher's suits, and upon your coat, by that machine?

A. It wore perfectly well, as well as any sewing could wear. It outwore the garments.

Fifteenth Interrogatory.—Do you know any thing of a sale of an interest in the patent for your brother's sewing machine to Mr. George Fisher, and when it was, and of how large an interest, and how much money was paid your brother for it?

A. While he was at work at Fisher's, I understood that Mr. Fisher was to have an interest in the invention; this was in 1846. My brother and Fisher went to Washington for the purpose of procuring a patent on the machine; when they returned my brother told me that he had assigned one-half the patent or invention to Mr. Fisher. I think the consideration of the sale was what Fisher had furnished to him in the way of money and lodging, and that he paid no additional consideration.

Sixteenth Interrogatory.—After this what assistance, if any, did your brother receive from Mr. Fisher?

A. After the conveyance Fisher furnished no means whatever.

Seventeenth Interrogatory.—What other machine, if any, besides the first one and the patent office model, was made about this time, and when and who had it made and paid for it, and what was afterwards done with it, and where is it now?

A. After Fisher refused to contribute any thing further, and in the summer of 1846, my brother made one other machine at his own expense. I took that machine to England in October, 1846; I sold it to Mr. William Thomas, in London, and it is now in his possession.

Eighteenth Interrogatory.—Were the first machine, the patent office model, and this last named machine, all of the same general construction, or otherwise?

A. The general construction was the same; there were

slight modifications in each. The last machine was slightly larger ; the shuttle or the capacity of the shuttle was larger.

Nineteenth Interrogatory.—When Mr. Fisher declined to advance any more to your brother, how much did your brother owe him ?

A. I think it was over \$2,000, and not \$2,500.

Twentieth Interrogatory.—What did your brother do with the half of his patent that remained after the sale to Fisher ? If he sold it, to whom did he sell it, and how much did he receive for it.

A. He sold it to my father. I think that at the time of sale no money passed. My brother was indebted to my father, somewhat, for assistance he had received, in money, board and lodging, and otherwise ; he also advanced to me money for my expenses to England, which was included. We called the whole amount one thousand dollars, at a rough estimate.

Twenty-first Interrogatory.—What were the circumstances and object of your going to England, and will you state what you did, and what arrangements, if any, you effected there in regard to your brother's invention ? State fully and consecutively.

A. I have stated that I returned from Louisiana, which was on a visit only ; but I was so well pleased with the invention, and at the solicitation of my father, I had concluded to remain and take an active interest in introducing the invention into public use. When Mr. Fisher refused to do any thing further with the machine, I suggested to my brother the propriety of doing something with it in Europe. With my brother's consent and with my father's assistance, I took the third machine to England, and sold it to Mr. William Thomas. He was largely engaged in the manufacture of stays, corsets, shoes, and somewhat in the manufacture of umbrellas, carpet-bags. He employed, as he informed me, five thousand hands. I sold him the machine and the invention for his own use for two hundred and fifty pounds, with the verbal understanding that if the machine went into public use with his consent, under the patent which he was to obtain, then he was to pay my brother three pounds royalty on each machine.

Twenty-second Interrogatory.—You say that the sale to Mr. Thomas was for use in his own business; will you explain more fully the extent of the right purchased by him, and to what the consideration referred?

A. The consideration of £250 was for the invention, so far as he might apply it, in his own business. He got the exclusive right for the whole kingdom for that money, with the verbal agreement, if the machine went into general use, outside of his business, with his consent, by license or otherwise, then he was to pay to my brother £3 royalty on each machine sold or licensed.

Twenty-third Interrogatory.—Will you state here what is your judgment as to whether, under all the circumstances existing at that time, such disposition and arrangement was a reasonable and judicious one, or otherwise?

A. It was a reasonable and judicious arrangement. I had no time to spare, and I was very fearful that the invention would be specified in some English patent, then already granted, but not yet enrolled, as I ascertained the law on that subject, after I got there. I found it was not safe to expose the invention to public sale, as it was absolutely necessary to keep the invention private for six months after obtaining the patent.

Twenty-fourth Interrogatory.—Had you, at that time, any means of knowing the disposition of English manufacturers and others, as to the introduction of machine sewing generally, and if so, what did you find it to be?

A. I had no means of knowing about their disposition at that time.

Twenty-fifth Interrogatory.—Please state here, also, what is your judgment as to whether or not the disposition which your brother had previously made of his American patent was a reasonable and judicious one, and as to what possibility and probability there was, under all the circumstances of the case, of his doing any better with it?

A. I will state that, at that time, this claim of Fisher, of some \$2,000, was against him, and he also owed some small amounts in the town. He told Mr. Fisher, at that time, if

he was not disposed to advance any thing farther on the invention, he (my brother) would be compelled to make some disposition of his part, and go to work at his trade again, or embark in some other business. At the time of that sale to my father, I had arranged to go to Europe. I advised my brother to make this sale to my father, to secure him for what he had advanced, and as a precautionary measure. I thought it, at the time, a judicious arrangement; I think so still. Before this sale, my father proposed to purchase of Mr. Fisher his half. He offered to secure him \$5,000 for it. Fisher declined the proposition, or to do any thing at all. There was no possibility or probability, under all the circumstances of the case, of my brother's doing any better with his interest.

Twenty-sixth Interrogatory.—At the time you went to England, what reliance had your brother as to money or credit, for manufacturing machines and introducing his invention, excepting what he might obtain by disposing of it in England?

A. He had no money and very little credit; he had no means or facilities for manufacturing machines or introducing his invention.

Twenty-seventh Interrogatory.—Did you make any agreement with Mr. Thomas besides that which you have mentioned, and if so, what?

A. Mr. Thomas, after the sale that I made him, proposed to furnish the means to adapt the invention to the manufacture of stays. He proposed that my brother might adapt it at home, in Cambridgeport, or come to England for that purpose. He would pay him three pounds a week salary, and furnish him with every facility for the purpose. I then returned home to Cambridgeport from England, and submitted the proposition to my brother. As no arrangement had been arrived at between him and Fisher, and there was no prospect of it, he elected to go to England, and we both sailed from Boston on the fifth of February, 1847, I think, and arrived in England about the first of March. Thomas immediately procured a place and furnished the tools and facili-

ties for adapting the invention to the manufacture of stays, shoes, &c. During that summer Mr. Thomas furnished him with money to enable him to fetch his family (family consisting of a wife and three children) over to England. My brother went to work and I assisted him a little, though not being a practical mechanic, I was of little use to him—keeping him company. I left London and returned to Cambridgeport, in November following; at the time of my leaving my brother had a machine about ready to sew, in which all the stay sewing could be done. The machine was tested by working on cloth and paper as to all the movements necessary on stay work, and worked satisfactorily; at this point I left.

Twenty-eighth Interrogatory.—For whom was the British patent obtained, and who paid the expense of it? Who did it belong to?

A. It was taken out in the name of William Thomas; he furnished the means to pay the expense, and it belonged to him.

Twenty-ninth Interrogatory.—What profit has Thomas made out of the English patent since that time? State generally, and so far as you have any means of knowledge.

A. I have no positive knowledge except from information and belief, partly obtained from Mr. Thomas. I saw Thomas in London, in February, March and April last. I traveled all over England, Scotland partially; went into the manufacturing districts, had frequent conversations with parties who had paid him royalties and taken licenses from him; the lowest estimate I heard of the amount received by him for licenses was £20,000; many put it at £30,000. His son is engaged in the manufacture and sale of machines, and I found probably fifty per cent. of the machines in use in England and Scotland were what is known as the Thomas machine. The profits derived from the manufacture and sale of machines I do not include in the amount of profit made by Thomas. What I spoke of as the Thomas machine was the machine invented by my brother and patented to Thomas. The royalties or licenses that Thomas charges on machines built by

other parties are ten pounds for each machine, and he has received ten pounds on many machines that I have sold in England myself.

Thirtieth Interrogatory.—Will you state the results of your observation while in England upon the occasion of your late visit, as to the extent to which the Howe or Thomas machine had been introduced into manufacturing business in England, both in regard to the number of machines in operation and in regard to the variety of manufacturing business to which you found it applied?

A. As to numbers, there are not so many machines as in this country. The machines are very extensively used in the manufacture of clothing, boots and shoes. The machines are owned there mostly by the manufacturers, rather than, as in this country, by the operatives.

Thirty-first Interrogatory.—Besides the two hundred and fifty pounds, and the three pounds a week wages, has your brother ever received any money from Mr. Thomas, or any income from the use of the invention and patent in Great Britain, and if so, what?

A. Mr. Thomas advanced the money for the passage of my brother's family, and, after his arrival, I think he increased his salary, but how much I don't know. But since my brother's return from England, in 1849, he received nothing from Thomas, or for the use of the invention or patent in Great Britain.

Thirty-Second Interrogatory.—Do you know any thing of your brother's circumstances, or of any pecuniary troubles of his in England, prior to his return to this country, or of his discharge from Mr. Thomas' employment, and whether he lived in England after he left that employment, and by what means he lived there, and how and by what means he returned home, he or his family? If so, will you relate all the circumstances, as they occur to you?

A. I know, from my brother's statements at the time he returned home, and from conversations recently with Thomas, that Thomas discharged him from his service; that imme-

diately after that his wife and children returned home without him. After their return, he returned, and landed in New-York. He did not go immediately home to Boston, for the want of means to carry him from New-York to Boston; he told me that he had half a crown, when he landed in New-York. At the time his family left England, he was living there in the family of a Mr. Inglis, and he was indebted wholly, or in part, to the assistance of Mr. Inglis for means to return to this country. My brother found a situation in New-York, in a machine shop, and went to work by the day. My father had some knowledge of his arrival, or of the arrival of the ship in which he was to come, and, finding that he did not return to Cambridgeport, wrote to him, informing him of his wife's state of health, and, I think, sent him money to return. His wife died at my father's house some ten days or two weeks after his return to Cambridgeport.

Thirty-third Interrogatory.—What became of the clothing and bedding, or other effects, which your brother had been able to retain possession of on the other side?

A. Those articles were shipped as freight, in another ship, at or about the time of his wife's leaving England; the vessel on which they were shipped was wrecked off Cape Cod, I think, and was a total loss; there was no insurance on the goods.

Thirty-fourth Interrogatory.—During the absence of your brother in England, had any sewing machines, embracing his invention, been made and put into operation in the United States, and how many, and by whom, or by whose authority?

A. There were some machines made and put into operation embracing the principles of his patent; how many, I cannot say; I saw some few. Those that I saw first were of the Bradshaw make. Mr. Fisher employed Bradshaw to make them, or rather Fisher entered into an arrangement with one J. P. Martin, and it was by Fisher, Bradshaw and Martin that the machines were made. I heard of other machines, of the Lerow and Blodget machines, but did not see any of those until after my brother returned.

Thirty-fifth Interrogatory.—How were the Fisher, Martin and Bradshaw machines made as to accuracy, efficiency &c.?

A. They were rather rudely constructed machines; they were what is known now as the rail-road machines; the feed motion was made by advancing the whole machine along the cloth, and the machine was limited to straight seams. The machine made a very good stitch, but it had no speed; the speed was limited.

Thirty-sixth Interrogatory.—During your brother's absence in England had any sewing machines embracing your brother's invention made, and put into operation in the United States without his authority or that of Mr. Fisher?

A. I can't speak positively on that point, but I think there were; at least shortly after his return they were found in operation without his authority or Fisher's, or my father's authority, who then held a title to the patent.

Thirty-seventh Interrogatory.—Who was found to be making or selling them?

A. Orson C. Phelps was making the Lerow & Blodget machine, and Lerow & Blodget were selling them. About the same time Mr. Bradford, of New-Bedford, was using similar machines. Mr. Thorp, in New-Hampshire, was using them also.

Thirty-eighth Interrogatory.—Please state fully what steps your brother Elias took with regard to these infringements, and what he did or endeavored to do, if any thing, in regard to regaining the title to his patent, or in regard to procuring co-operation or assistance with a view to prosecuting such infringements?

A. When he returned to Cambrigeport from New-York, he entered into the employ of Hiram Tucker, a brother-in-law, and while in his employ he did what he could, besides attending to Mr. Tucker's business, in notifying infringers, and commenced two actions, one against Bradford, and one against Phelps; at the same time he worked at odd hours in making another machine. After the commencement of these

actions he solicited assistance. I think I am a little ahead there. I think that before he commenced these actions he tried to enlist Fisher again. Fisher declined, and these actions were so brought as to make Fisher a defendant in these actions. I do not know when the patent was assigned by my father to my brother, nor the terms of the assignment.

Thirty-ninth Interrogatory.—Do you know of any attempts by your brother to settle with these infringers without suit, and the result of these attempts?

A. Yes; my brother proposed to give them a license or come to amicable terms as to the use of the machine. He proposed this to Bradford. He made that proposition to Thorp also. Thorp came to see him about it, but I think no arrangement was made with either of the parties. They were both disposed to settle the matter—to compromise—but Lerow objected.

Fortieth Interrogatory.—What was the pecuniary ability of these infringing parties for the purpose of defending such suits as compared with that of your brother?

A. Bradford and Thorp were men of moderate means, engaged in the manufacture of clothing; able to purchase machines and successfully use them. Mr. Phelps had a very fine machine shop, not large, probably two thousand dollars worth of machinery; of that I cannot speak positively. Lerow was reputed to be a man of some means and able to defend. My brother had no means at all, and depended entirely upon his wages for the support of himself and family.

Forty-first Interrogatory.—What assistance, if any, in the defence of those suits, was received from outside parties, and from whom?

A. The suits were defended by Lerow for some time, through all the preliminary stages; the trial was finally conducted and carried on at the expense of Isaac M. Singer & Co.

Forty-second Interrogatory.—Do you know any thing, and if so what, of any embarrassments under which your brother labored in the preparation of those cases for want of counsel?

A. I know that he had not money to pay the court fees in the first instance; that he had not his patent, nor model machine, those having been left in England in pawn.

Forty-third Interrogatory.—From what quarter did your brother obtain, finally, the funds to meet the expenses of those suits?

A. I think he got some little money of my father first. Then he arranged with Daniel C. Morey, George S. Jackson and William E. Whiting, who engaged to take the Fisher interest and furnish money to conduct these suits. They were unable or did not furnish money as they agreed, and in a measure forfeited what they had paid. Then an arrangement was made with Mr. George W. Bliss, through his agent, William R. Bliss, to furnish the money to conduct the suits; Bliss agreeing to take the Fisher interest, but he required to be indemnified against loss. My father gave him a mortgage on his farm to indemnify him. My brother retained Mr. Benjamin R. Curtis as senior counsel. About the time the case was ready for trial, Mr. Curtis received the appointment of Judge of the Supreme Court, and was incapacitated from setting as judge in the case, or acting as counsel further. I think that fact put off the case one or two terms.

Forty-fourth Interrogatory.—For what sum was the interest of Mr. Fisher obtained, and to whom was it conveyed; and had he retained, and did he convey the entire interest which he first had?

A. I can't state the exact sum; I think it was a sum approximating to twenty-five hundred dollars. It was conveyed to George W. Bliss, or to him with somebody else. Mr. Fisher did not have the whole interest to sell, having parted with twelve of the Western States to J. P. Martin.

Forty-fifth Interrogatory.—Upon what alleged prior invention of the sewing machine did the defence rely in the suits referred to for the purpose of invalidating the Howe patent?

A. The defence relied upon the alleged invention of Walter Hunt.

Forty-sixth Interrogatory.—When did you first hear yourself of Walter Hunt, or of his supposed invention?

A. About the 12th day of July, 1850.

Forty-seventh Interrogatory.—Is there any incident by which you remember that date?

A. There is.

Forty eighth Interrogatory.—So far as you know from anything your brother ever said or intimated to you, or so far as you know at all or believe at all, when did your brother first hear of Walter Hunt or of his supposed invention?

A. His first knowledge of Walter Hunt was derived from me, not more than two days after the date I have mentioned, the 12th of July.

Forty-ninth Interrogatory.—Prior to that time, so far as you ever learned from your brother, or in any other way, what knowledge had he of any invention whatever in sewing machines antecedent to his own?

A. I am quite positive that he had none.

Fiftieth Interrogatory.—What opportunities had you of knowing the state of his knowledge or information on that subject?

A. I had daily opportunities from childhood up.

Fifty-first Interrogatory.—What was the result of the suits above referred to?

A. After three weeks' trial, most of it employed upon this matter of Hunt's invention, the verdict was rendered in my brother's favor.

Fifty-second Interrogatory.—At what time afterwards, if at all, had your brother succeeded in getting in to himself the entire title to his patent?

A. I can't tell the exact dates. After this trial I left my brother's employ, having been with him until that time, and am not so familiar with his transactions as I was previous to that time. I think it was about the year 1855.

Fifty-third Interrogatory.—What has been the general policy pursued by your brother since the time of the verdict; for the enjoyment of his patent, to retain the monopoly of sale and manufacture to himself, or to license the sale and manufacture upon reasonable terms?

A. The policy has been to license responsible parties to manufacture the machines, for which they were to pay him a license.

Fifty-fourth Interrogatory.—State, if you know, whether and to what extent attempts have been made by infringing defendants, since the suits first referred to, to set up Hunt's supposed invention to invalidate the Howe patent; how actively and to what extent, as to expense, such efforts have been made?

A. In all the actions where he has been plaintiff and I have been a witness, or had any concern, the alleged invention of Hunt has been introduced into the defence. The great majority of the expense and trouble my brother has been put to was in meeting the alleged invention of Walter Hunt.

Fifty-fifth Interrogatory.—Will you state the names of some of the more important manufacturers who are now under license from your brother to make and sell machines embracing his invention?

A. Wheeler & Wilson Manufacturing Co., the Grover & Baker Sewing Machine Co., I. M. Singer & Co., Ladd, Webster & Co., Leavitt & Co., of Boston, Bartholf, of New-York, and others of less note.

Fifty-sixth Interrogatory.—What license fees are now received from such parties, or have been heretofore received?

A. The first licenses were taken by Wheeler & Wilson at \$25 a machine. After that, when Singer, and Grover & Baker took licenses, the terms of license were made general, and reduced to \$10 a machine on the first thousand machines; second thousand, \$9 a machine; third thousand, \$8; the fourth thousand, \$7; the fifth thousand, \$6; and all after that

\$5 a machine. I think that there are some parties who are making a large number of machines, who pay less than five. Machines for exportation pay \$1.

Fifty-seventh Interrogatory.—Of all the sewing machines, embracing the Howe invention heretofore made and sold in this country, what proportion, if any, so far as your knowledge extends, have for any cause and what cause failed to yield Elias Howe any tariff or income whatever?

A. Probably nearly one-half of the machines have failed to yield him any income. The causes are various; the machines have been built in all parts of the country, West and South, beyond his reach; many manufacturers have engaged in the business, and built more or less machines, and have relinquished the manufacture or failed in business, and nothing could be gained by prosecuting them. There are at this present time a large number of small manufacturers in this city engaged in manufacturing these machines, and in almost every other city in the Northern and Western States, who do not pay him any thing; some from inability to pay, and many who would not pay if they are able.

Fifty eighth Interrogatory.—What number of machines, or about what number, have been made in this country by licensees of the Howe patent for domestic and foreign use, in the last year, and what amount in all up to the present time, according to your best means of information?

A. I think, in the last year, about forty thousand. I can answer the question more accurately upon referring to books.

Fifty-ninth Interrogatory.—At what time, according to your best judgment, did your brother begin to derive profit from the enjoyment of his patent?

A. I don't think there was any real profit until 1856, but I am not positive on that point.

Sixtieth Interrogatory.—Do you know of any efforts made by your brother, by exhibiting his machine or otherwise, before he went abroad, in 1847, to get it into use in this

country among tailors and others ; if so, what do you know upon that subject ?

A. It was exhibited to a great many tailors in Boston, and in a number of shops, and more particularly at Quincy Hall, as I have before stated. It was also exhibited at the national fair at Washington, in 1845 or 1846.

Sixty-first Interrogatory.—What obstacles were found to exist to its introduction in the trade in this country at that time ?

A. There were several obstacles and objections. The stitch was perfect and was liked by every person, but one great objection was, that it would not make the whole garment. The trade wanted a machine to make the whole garment, so they would not have to be giving it out. Journeymen tailors objected to working with machines. They would not finish after machines. Manufacturers objected to it because it was an innovation, they would have to alter their system of manufacturing, so as to avail themselves of its benefits. Those who first availed themselves of the benefits of the machine were not journeymen tailors, but those who had not been educated as tailors. I received this answer from some manufacturers, “ We like the machine, and like that kind of work, but we cannot introduce it without changing our whole system of manufacture. We are doing well as we are, and do not wish to change. We are afraid to make the change.”

Sixty-second Interrogatory.—To what extent has the prejudices of journeymen tailors and others, to the use of the machine, continued since that time ?

A. The prejudice still exists among certain classes of journeymen tailors, those who learned their trade by hand work. The manufacturers at the present time, and for the last three years, have favored the introduction of the machines ; in many departments of clothing they actually require the work to be done by machines.

Sixty-third Interrogatory.—Within what time have the machines been introduced to any practical extent into fami-

lies, and what is the relative importance or value found to belong to that branch of the business?

A. For about three years. The majority of the demand for machines at the present date is for families, and the benefits are found to be very great in the families where they are used.

Sixty-fourth Interrogatory.—Have you any knowledge of the effect which the introduction of the machine has produced upon the condition of needlewomen and other operatives, if so, state such facts as have come to your knowledge?

A. It has improved their condition. The first machines were introduced in manufactories—in cap and clothing manufactories. In the manufactories, the operatives were employed by the day, say ten hours, and received fully as much pay as if they had worked by hand at home fifteen or sixteen hours. Those that used the machines or worked in connection with them, received fully as much pay and worked a less number of hours. Good operatives on machines receive, at least, fifty per cent. more than they would if working by hand, and some as much as one hundred per cent.

Sixty-fifth Interrogatory.—What has been the effect of the introduction of the machines in creating or promoting specific departments of manufacture, if any?

A. First, as regards the manufacture of the machines themselves, several very large manufactories have been established, and many small ones are in operation. I should say that five thousand men are now employed in the construction of machines in this country, and, probably, two hundred hands employed in making machine needles, a business apart from machine manufacture, and not required or known before the introduction of the machines.

I think that in 1850 there were only two japanners in New-York, and in a very small way; at the present moment there are several very large establishments employing many hands. All the machines require to be japanned, and I have no doubt that \$500 a week are paid in this city for japanning sewing machines.

The introduction of machines has required an almost

wholly new article of manufacture, a manufacture not carried on to any extent in this country previous to the introduction of the machines. This article is known as machine twist. There are numerous manufactories now in the United States exclusively for the manufacture of machine twist, which import the raw silk and manufacture it into twist, giving employment to a vast number of operatives. The machine twist bears a value of about two dollars a pound above what is known as sewing silk, made from the same raw material.

The further examination of this witness was adjourned till July 25, 1860, at 10 o'clock, A. M.

(Attest.)

HORACE ANDREWS,
Comm'r of Deeds.

New-York, July 25, 1860, at 10 o'clock, A. M.

Pursuant to adjournment last noticed, the said Causten Browne appeared for said Howe, and Sam'l Blatchford, Esq., appeared for the opponents, and thereupon the taking of testimony was proceeded with on the part of said Howe as follows:

And in further answer to the sixty-fifth interrogatory says:

I can't speak with positive knowledge as to the importation of twist. The American twist has taken the place, in a measure, of that which used to be imported, and large quantities of the American twist are now exported to all parts of the world. I have filled myself orders for England, and quite a number for Canada. When I say the American twist has taken the place, in a measure, of that which used to be imported, I mean for purposes other than machine purposes. We have always, since the introduction of the machines, made in this country our own machine twist. Much difficulty was experienced at first in introducing the machines, owing to the want of machine twist.

Sixty-sixth Interrogatory.—Have you made any estimate or examination as to the number of licensed machines which

have been made and sold, under the Howe patent, in the United States up to this time, and with what result?

A. My information as to the number is not positive. I think the number is 100,000, or about that number.

Sixty-seventh Interrogatory.—What do you estimate to be, at a low figure, the amount of capital invested in the sewing machine manufacture at the present time in this country?

A. It is very difficult to make the estimate, but I should think at least two millions of dollars.

Sixty-eighth Interrogatory.—Has there been any period of time, and how long a period, if any, since 1850, when your brother Elias was not engaged in some necessary litigation in defence of his patent, or in the prosecution of infringements?

A. There has been no time. I have frequently myself been called away, for weeks at a time, from my business, as a witness in such suits, where he was interested, and frequently in sewing machine suits where he was not interested, to the great detriment of my own business.

Sixty-ninth Interrogatory.—What has been your brother's course since the production and introduction of his machine, as to studying how to improve the same, and how, generally, to foster and develop the sewing machine interest throughout the country?

A. He has always kept a workshop and tools, and experienced workmen engaged, at a great expense. He has purchased several inventions, in sewing machines of other improvers and modifiers of his invention. I have heard him frequently state to parties, that he would purchase meritorious improvements on his machine.

Seventieth Interrogatory.—You have mentioned date in the year 1850, as that of your first knowledge or information of Walter Hunt, or of his supposed sewing machine. Will you now state the circumstances of your obtaining such information, and relate what passed between you and Mr. Hunt at any conversation occurring at that time between you, and state who else was present, if any one, and heard the conversation?

(Counsel for opponents objects to any testimony as to what was said by Mr. Hunt, as being hearsay evidence, and therefore incompetent.)

A. I was introduced to Walter Hunt, I think, on the 12th day of July, 1850, by Smith Gardiner, at Dunlap's Hotel, 135 Fulton-street, New-York. Mr. Gardiner introduced me as the inventor of the sewing machine. I corrected him, and stated that it was my brother who was the inventor. After a little reflection, Mr. Hunt observed that my brother was not the original inventor, that he himself was the original inventor. I asked him when he invented the machine; he said he could not tell exactly when, but thought it was as early as 1831 or 1832. I asked him to describe the machine and its operation; he said he could not, as it had been so long since he had seen it, or ever thought of it, that he could not tell any thing about it, without having time to reflect upon the matter. I asked him to give some general information as to the main functions or features of the machine. After some reflection, he said it had a common needle and a shuttle, and the needle carried the thread through the cloth, and the shuttle thread and the needle thread were locked together, and that was all that he could tell about the machine and its operations, at that date. I asked him what had become of the machine; he said he could not tell. He thought that the machine was destroyed or broken up, but if there were any remnants of it left, I could find them at Mr. Geo. A. Arrowsmith's, who could give me more information about the machine than he could. I asked him if he did not own it; he said he thought he did not; he thought he sold the machine and invention to Mr. Arrowsmith, many years ago. I asked him if he obtained a patent, or applied for one; he said he did not. I asked him if it was a perfected machine, or an experimental machine; he said he considered it an experimental machine, and not perfected, and that he had entirely forgotten the whole matter. This conversation was in presence of Smith Gardiner and John W. Cochran. The substance of this conversation was again repeated by Walter Hunt, with my brother and myself, some two or three days after the date I have mentioned.

And on his cross-examination by Samuel Blatchford, Esq., of counsel for the opponents Geo. B. Sloat and Williams and Orvis, as follows :

First Cross-Interrogatory.—Please state when you first commenced paying license fees to your brother for the use of his patent ?

A. I can't state exactly. I think in 1854. I never had any special license from him.

Second Cross-Interrogatory.—Please state what are the various rates of fees you have paid him for machines, and the modifications of such rates, if any, and their dates, as nearly as you can.

A. I paid him \$10 a machine till, I think, the last two years ; since then, \$5.

Third Cross-Interrogatory.—Please state from your knowledge of your brother Elias' business, and of the quarterly returns made to him by his licensees, and from what you have seen of his books, whether or not the following statement, printed in the New-Orleans Daily Picayune, of May 20, 1860, and purporting to have been published therein as an advertisement by Wheeler & Wilson, is a correct statement of the number of sewing machines made by the various parties named during the several years specified, which have paid a license fee to your brother, under his patent, on each machine, ending in each case with November, 1859, except in the case of I. M. Singer & Co., which is up to October 1, 1859 :

	1853.	1854.	1855.	1856.	1857.	1858.	1859.	Total.
Wheeler & Wilson,	799	956	1,171	2,210	4,591	7,978	21,086	38,991
Grover & Baker,....	657	2,034	1,145	1,952	3,680	5,070	10,280	24,813
I. M. Singer & Co.,.	810	879	888	2,564	3,630	3,594	10,988	23,353
Ladd & Webster,..	100	268	73	180	453	490	1,788	3,352
A. B. Howe,.....		60	53	47	133	179	921	1,393
Bartholf,.....	135	55	31	35	31	203	747	1,237
Leavitt & Co.,.....	28	217	152	235	195	75	213	1,115
Finkle & Lyon,....	...	...						

A. I have never seen this statement of the Picayune before. I can't speak at all of its correctness. I will take it and compare it with the original statement my brother gave to Wheeler & Wilson.

Fourth Cross-Interrogatory.—Has not the machine which you speak of in your answer to the ninth direct question, as being the machine your brother had on your arrival at Cambridgeport, in July, 1845, the same kind of feed, that is described in the patent of September, 1846, namely, what is now generally called the baster-plate feed?

A. It has.

Fifth Cross-Interrogatory.—About how many of the 100,000 licensed machines, spoken of by you in your answer to the sixty-sixth direct question, as the number made and sold by licensees under your brother's patent, in the United States up to this time, have had a baster-plate feed like that described in said patent?

A. Probably 500, with a modified form of baster-plate, similar to that described in my brother's machine.

Sixth Cross-Interrogatory.—Is any manufacturer that you know of, whether he pays license to your brother or not, now making sewing machines with a baster-plate feed of any kind; and if so, who, and to what extent?

A. Mr. A. Bartholf, one of his licensees, now makes machines, or has very recently made them, with the modified baster-plate, which I have just mentioned. I can't say as to the present extent, as the demand for that kind of machine is at present rather limited.

Seventh Cross-Interrogatory.—Are any such baster-plate machines made by any of the manufacturers named in the third cross-question, except Bartholf, that you know of?

A. I think not.

Eighth Cross-Interrogatory.—Have you ever paid less than \$5 per machine license fee to your brother under his patent?

A. No.

Ninth Cross-Interrogatory.—State about what has been the ratio of increase in the manufacture of sewing machines by you during the years 1855, 1856, 1857, 1858 and 1859, and the first half of 1860, yearly?

A. I think the figures set against my name in the third cross-interrogatory are nearly correct. The entire number for 1859 made by me was _____, and the number, so far, in 1860 was _____

Tenth Cross-Interrogatory.—Did you attend the trial in Boston of either of the suits against Bradford or against Phelps that you have mentioned?

A. I attended the suit against Bradford.

Eleventh Cross-Interrogatory.—Were those suits suits at law or in equity, and were they both tried?

A. The suit against Bradford was at law; the one against Phelps was in equity. I think the suit against Phelps was not tried, but am not positive.

Twelfth Cross-Interrogatory.—Was not Walter Hunt offered as a witness by the defence in the trial of the suit against Bradford, and was not his testimony entirely excluded by the court on some question relating to his religious belief?

A. Walter Hunt's testimony was offered and admitted in full. The testimony was taken before a commissioner of New-York. The defence brought him personally into court, and offered him as a witness to testify further in the matter, and in explanation of what he had already testified before the commissioner in New-York. The court then excluded further testimony on account of his religious belief.

Thirteenth Cross-Interrogatory.—Are any of the machines which pay license fee to your brother, single thread machines?

A. I think some of them are; Singer has made single-thread machines which I think he has paid license for; also, there are one or two others that now pay him a license.

Fourteenth Cross-Interrogatory.—About what number of the 100,000 licensed machines which you have mentioned would you estimate as having been single-thread machines?

A. I cannot tell; comparatively very few; probably some 500.

Fifteenth Cross-Interrogatory.—Has your brother, to your knowledge, ever brought any suit for infringement of his patent for the manufacture or sale of single-thread machines?

A. My knowledge is not positive on that point, but I think he has brought one suit, where he intended to include single-thread machines.

Sixteenth Cross-Interrogatory.—For the infringement of what particular part of his patent of September, 1846?

A. I have not sufficient knowledge or information on that point to give an intelligent answer.

Seventeenth Cross-Interrogatory.—From your knowledge of sewing machine business, can you state about what number of single-thread machines are now made and sold annually in the United States, or about the proportion which such single-thread machines bear to the number of double-thread machines?

A. It is difficult to arrive at positive information on that point, but I should think there had been nearly as many of the single-thread machines made as there had been of shuttle machines. At the present time, I do not think so many of the single-thread machines are being made.

The further taking of testimony on behalf of said Howe was then adjourned to July 26th, 1860, at 10 o'clock, A. M.

Attest,

HORACE ANDREWS,

Comm'r of Deeds.

New-York, July 26th, 1860, 10 o'clock, A. M.

Pursuant to adjournment last noted, Causten Browne, Esq., of counsel for said Howe, and Samuel Blatchford, Esq., of counsel for opponents, appeared, and the examination of witnesses on the part of said Howe was continued as follows :

Re-direct examination of AMASA B. HOWE.

Seventy-first Interrogatory.—In going out to England and returning, what sort of passage did your brother take ?

A. In going, we both took a steerage passage. There were very few passengers, and we cooked our own provisions. In returning, he took steerage passage, cooked his own provisions when he could get a chance at the galley, which frequently he could not do, as the ship was crowded with passengers.

Seventy-second Interrogatory.—What acquaintance of your brother's was present at his departure in the vessel, and on what business ?

A. After the ship had cast off, and the gangway planks were drawn in, we saw Mr. Fisher coming down the wharf, apparently out of breath. I don't know what his business was from any thing he did.

Seventy-third Interrogatory.—You stated yesterday that you believed there had been as many single-thread machines as shuttle machines made in the United States. Please explain precisely what you mean by that, and also what you mean by shuttle machines, as discriminated from double-thread machines generally, to which the cross-interrogatory you were answering was addressed.

A. I was under the impression yesterday that there had been as many single-thread machines made, in the aggregate, as shuttle machines. I think that was the fact until eighteen months or two years ago. I find, upon inquiry, that most of the manufacturers of the single-thread machines have changed those machines into double-thread machines, by which they are enabled to make what is known as the Grover & Baker stitch, which can be done without altering the

form of the machine, and at slightly extra expense in the mechanism. Very few of these machines have paid any tariff to my brother. I mean by shuttle machines those machines using a shuttle ; also the Wheeler & Wilson's rotary hook machine, also the Sloat elliptic hook machine. I was led into this error of statement yesterday on account of having been out of the country, and not having been aware that the change from single to double-thread machines had been gone into so extensively by manufacturers of single-thread machines. There are two kinds of machines extensively or commonly known as double-thread machines ; one of which makes what is called the shuttle stitch, the other is known as the Grover & Baker stitch, which is made by a needle carrying one thread, and a vibrating or rotary hook carrying the second thread.

And being further cross-examined by Samuel Blatchford, Esq., of counsel for said opponents, as follows :

Eighthteenth Cross-Interrogatory.—Do you call the double-thread machines, making the Grover & Baker stitch, into the manufacture of which you say the single-thread machine makers have gone, shuttle machines ?

A. I do not.

Nineteenth Cross-Interrogatory.—Then, is not your answer yesterday correct, that there had been as many single-thread machines made, in the aggregate, as shuttle machines ?

A. I think there had been as many made and probably more, if you exclude from the shuttle machines the Wheeler & Wilson and the Sloat hook machines. I wish to give the idea, that at the present moment, the manufacture of single-thread machines is, in a measure, almost entirely discontinued ; at least, the sale of them has almost entirely fallen off.

Twentieth Cross-Interrogatory.—How does the manufacture and sale of shuttle machines proper, excluding all rotary and elliptic hook machines, compare, at the present time, with the manufacture and sale of all other sewing machines, whether single or double-thread, including in the latter the rotary and elliptic hook machines and the Grover & Baker stitch double-thread machines ?

A. There are as many of the shuttle machines proper now being made as at any former time; but there are not so many shuttle machines proper being made by the licensees, collectively, of my brother. Of the single-thread, rotary, and elliptic hook and Grover & Baker stitch, I think there are more being made than at any time previous, particularly of the double-thread or Grover & Baker stitch machines. It is impossible to arrive at an exact comparison, or any thing approaching it, in comparing the shuttle machines proper with all the other machines mentioned. I think, however, that the shuttle machines proper may constitute one-fourth or one-fifth of the whole number.

Twenty-first Cross-Interrogatory.—What proportion of the whole number do you call the elliptic and rotary hook machines?

A. Probably one-fourth or one-fifth.

Twenty-second Cross-Interrogatory.—What proportion of the whole number do you call the Grover & Baker stitch machines?

A. Probably three-eighths. I have no exact data to go upon for these amounts, but state to the best of my judgment from my knowledge of the trade generally. I would state, also, that the single-thread machines are the cheapest machines made. That the expense of alteration from the single thread to the Grover & Baker stitch machines is so trifling, and so many have made that change, that it is difficult for me to estimate the number of the Grover & Baker stitch machines with proper correctness.

Twenty-third Cross-Interrogatory. — Do not the single-thread machines and the double-thread machines which make the shuttle stitch, embracing those that use the shuttle proper and those that use the rotary hook or elliptic hook, and the double-thread machines that make the Grover & Baker stitch, comprise all the machines which, so far as you know, are now made or sold in the United States?

A. The machines enumerated in the question comprise all of which I have any knowledge.

A. B. HOWE.

The witness, A. B. HOWE, for further answer to the preceding third cross-question, says :

I have compared the table contained in that cross-question with a copy retained by my brother, of the original statement which he gave to Wheeler & Wilson, and find that such table corresponds with that copy statement, and I believe the table to be correct, according to my brother's books.

A. B. HOWE.

City and County of New-York, ss.:—On this 26th day of July, 1860, before me personally came the above-named Amasa B. Howe, and made oath that the foregoing deposition by him subscribed contains the whole truth and nothing but the truth.

The said deposition is taken at the request of Elias Howe, Jr., to be used upon the hearing of his application for an extension of his patent of September, 1846, before the Commissioners of Patents of the United States, at his office, on the 13th day of August, 1860.

The parties opposing said application were duly notified, as appears by the original notices hereto annexed, and attended by Samuel Blatchford, Esq.

Certified by me,

HORACE ANDREWS,

Comm'r of Deeds.

JULIUS SHELDON, having been duly sworn, doth depose and say, in answer to interrogatories proposed to him by Causten Browne, Esq., counsel for Elias Howe, Jr., as follows, viz. :

First Interrogatory.—What is your name, age, residence and occupation.

A. Julius Sheldon ; aged forty-two ; residence 17 Lafayette Place ; occupation manufacturing and selling hats.

Second Interrogatory.—Were you ever engaged in the manufacture and sale of caps in the city of New-York, and if so, from what time to what time, as near as you can state?

A. I have been from 1848 to 1857.

Third Interrogatory.—Have you used from the beginning, and if not for what part of the time have you used sewing machines in your business, and what kind of machines?

A. I have used machines from the fall of 1849 to 1857—the machine known as the Bartholf machine, manufactured under the Howe patent. In the fall of 1849 I used two of the Lerow & Blodget machines; I used them through the fall. I then gave them up for the Bartholf, which I considered superior.

Fourth Interrogatory.—What has been your business since 1857, and what sewing machines, if any, have you used in that business?

A. Manufacturing and sale of hats. I have used in that business Singer's sewing machines.

Fifth Interrogatory.—What number of caps did you make annually in your business while in the cap business?

A. The largest number any one year, I should judge, was about fifteen thousand dozen. The last years that I was in the cap business it averaged about that number.

Sixth Interrogatory.—Has the cap manufacture in New-York increased or diminished since that time, and if increased, to what extent generally?

A. My impression is that the production of caps is about the same as in 1857.

Seventh Interrogatory.—From your knowledge of the cap business in 1857, when you left it, what proportion of the entire cap business in New-York city do you think was done by yourself?

A. Probably not one part in twenty-five.

Eighth Interrogatory.—In 1857 what was the cost of manufacturing average caps per dozen by hand, and what the cost by the sewing machines which you used, excluding in each case the cost of finishing done by hand?

A. It cost ten cents per dozen by the machine. I think it would have cost me sixty cents per dozen to have it done by hand, and it would have been done in a much inferior manner.

Ninth Interrogatory.—How many hand's work at cap-making was done by the machines which you used in that business?

A. I think that a machine would do the work of from eight to twelve hands.

Tenth Interrogatory.—About how many hats do you turn out annually in your present business?

A. We are making this year about fifteen thousand dozen.

Eleventh Interrogatory.—What do you do with the sewing machines in your hat business?

A. We bind the rims.

Twelfth Interrogatory.—How does the proportion of your hat manufacture to the total in New-York city compare with the proportion mentioned by you in the cap business?

A. I should judge it was about the same.

Thirteenth Interrogatory.—Are hats in New-York city now bound by hand at all; and if so, to what extent, comparatively?

A. I do not know that any are bound; no soft hats are, I am confident, which is much the largest class.

Fourteenth Interrogatory.—How long does it take to bind a hat by hand, and how long by your machines?

A. About fifteen minutes by hand. I have ascertained that by experiment within a few days. The machine will do it in about one minute.

Fifteenth Interrogatory.—What does the binding of your hats by the machines cost you by the dozen in labor, and what do you estimate it would cost you by hand?

A. From four to five cents per dozen by the machines. I think it would cost thirty cents per dozen by hand.

Sixteenth Interrogatory.—Will you state at what periods in the year the hat or cap seasons come, and how long they last, and what advantage, if any, is enjoyed in getting up the necessary amount of goods for the season, within the necessary time, from the introduction and use of sewing machines in those trades?

A. The spring trade commences about the first of February—the sales. The principal amount of sales occurs within three months. Sales commence about the middle of July for the Fall trade, and continue for about the same length of time. It is an advantage, in many respects, to have the machines for the purpose mentioned. There is a saving of capital; we can produce goods as we want them in a short time, and such as the market requires.

And on his cross-examination by Samuel Blatchford, Esq., of counsel for opponents of such application, as follows:

First Cross-Interrogatory.—How many of the Bartholf machines did you use from the Fall of 1849 to 1857 at any one time?

A. I have had as many as thirty machines, I believe—from twenty-eight to thirty.

Second Cross-Interrogatory.—How many of the Singer machines have you had at any one time since 1857?

A. Two.

Third Cross-Interrogatory.—Have you, since 1857, and since you got any of the Singer machines, used any of the Bartholf machines; and if so, how many?

A. I have one in the store that we use occasionally for a particular purpose, but use it very little. We use it for

stitching the ribbon tips, which is a part of the lining, and stitched with a straight seam.

Fourth Cross-Interrogatory.—When was it that you had in use as many as thirty of the Bartholf machines?

A. I think it was in 1854 or 1855.

Fifth Cross-Interrogatory.—Why did you give up the Bartholf machines, and what became of those you had?

A. I discontinued the manufacture of caps in 1857, and I consider the Singer machine better adapted to binding hats. I sold a part of the Bartholf machines, and a part remain in the store. About seventeen or eighteen remain in the store.

Sixth Cross-Interrogatory.—How long since those seventeen or eighteen were used, and are they now used?

A. They have not been used since 1857, except the one I before referred to.

Seventh Cross-Interrogatory.—Do you not also consider the Singer machine as the best for caps?

A. I do not. I consider the Bartholf machine better than the Singer for that purpose.

And on his further direct examination as follows:

Seventeenth Interrogatory.—Why do you keep on hand the Bartholf machines that you do not use?

A. Because they couldn't be sold satisfactorily.

Eighteenth Interrogatory.—Were there any other Bartholf machines working in the building with you besides your own, when you were in the cap business; if so, how many?

A. A portion of the time, I think about ten machines.

Nineteenth Interrogatory.—How large a part of the entire sewing on the caps was done by the machines?

A. All the sewing except the finishing; that is, putting the fronts on and putting the lining in.

JULIUS SHELDON.

City and County of New York, ss. :—On this 26th day of July, 1860, before me personally appeared the above named Julius Sheldon, and made oath that the foregoing deposition by him subscribed contains the whole truth and nothing but the truth. The said deposition is taken at the request of Elias Howe, Jr., to be used upon the hearing of his application for the extension of his patent of September tenth, 1846, before the Commissioner of Patents, at his office, on the 13th day of August, 1860.

The parties opposing such application were duly notified, as appears by the original notices hereto annexed, and attended by Samuel Blatchford, Esq. Certified by me,

HORACE ANDREWS,
Comm'r of Deeds.

CHARLES C. BACKSTER, being duly sworn, doth depose and say, in answer to interrogatories proposed to him by Causten Browne, Esq., counsel for Elias Howe, Jr., as follows, viz.:

First Interrogatory.—What is your name, age, residence and occupation?

A. Charles C. Backster. Age, fifty-nine. Residence, 177 Schermerhorn-street, Brooklyn. My occupation is superintending a cap manufactory, and keeping books and general accounts in that business, in the city of New-York.

Second Interrogatory.—How long have you been connected with the cap manufacture in this city?

A. Say fourteen years.

Third Interrogatory.—In the cap business with which you have been connected, have any sewing machines been employed, and for what purpose, and what machines, and since what time?

A. We have employed sewing machines since 1852. The machines that they purchased were the Bartholf machines. They were employed for sewing the bodies of caps.

Fourth Interrogatory.—Except what is known as finishing,

how much sewing upon the cap was not done by the machine?

A. What we call finishing, is sewing in the trimmings. The machine does all except the finishing. There are a few complicated caps which a machine cannot sew, but it is only a small number.

Fifth Interrogatory.—Of how many hands does a Bartholf machine do the sewing work on caps?

A. The Bartholf machines will sew some kinds of work, the work of eight hands; some kinds ten hands, some as high as twelve hands.

Sixth Interrogatory.—How is it in particular, so far as the saving in this respect is concerned, in the case of navy covers, bands, &c., &c.?

A. It would stitch of navy covers, oil silk covers and cloth covers, working the same hours, ten to one.

Seventh Interrogatory.—What would be the cost of having navy covers and bands stitched by hand, as they are done now by machines, and what is the cost by the machines?

A. It costs, on silk covers, about eighteen cents, and on cloth, about fifteen. By hand it would cost a dollar and a quarter a dozen to have them as finely stitched as we have them done by the machine.

Eighth Interrogatory.—What classes of cap work, if any, are now a days entirely done upon the machines?

A. The oil silk covers. The stitching of the bodies of navy caps is also entirely done by the machines.

Ninth Interrogatory.—What proportion of the body sewing of the caps, (that is, all except the finishing,) in the city of New-York, is now done by the sewing machines?

A. I should judge four-fifths.

Tenth Interrogatory.—If you have sufficient acquaintance with the hat manufacture and binding of hats in the city of New-York, will you state what proportion also, if any, of that is now done by hand?

A. I am not able to state of my own knowledge.

Eleventh Interrogatory.—What proportion does the number of hats bear to the number of caps annually sold in New-York, if you have the means of stating?

A. I should judge four times as many at the least.

Twelfth Interrogatory.—Taking the body sewing of caps on the average in your business, what does it cost per dozen by the machine, and what would it cost per dozen by hand?

A. They average from nine to ten cents a dozen on the machine. The cost by hand would be from seven to nine times as much.

Thirteenth Interrogatory.—How many hands are employed in your business during the season, and how many dozen caps do you turn out a year?

A. During the busiest season, we employ from forty to fifty. I think last year we turned out about ten thousand dozen.

Fourteenth Interrogatory.—Which sewing machine is most used or found best adapted in New-York for sewing cap bodies?

A. We have found the Bartholf machine the best.

Fifteenth Interrogatory.—What advantage, if any, does the use of the sewing machine in the cap trade present, as regards the ability to meet the season's demand within the necessary time, and of what importance is that in the cap business, and why?

A. The very highest advantage. It assists us to manufacture our goods by commencing a short time before the trade

commences, instead of having to purchase all these goods and manufacture them a number of months before.

Sixteenth Interrogatory.—What effect, if any, has the introduction of the sewing machine in the cap manufacture produced, in the way of stimulating, or extending or developing that business?

A. It has materially enlarged it.

And on his cross-examination Samuel Blatchford, Esq., of counsel for opponents, as follows:

First Cross-Interrogatory.—What is the name of your concern?

A. Charles Backster, Jr.

Second Cross-Interrogatory.—What number of Bartholf machines you now employ?

A. Eleven.

Third Cross-Interrogatory.—What is the largest number you have ever employed of those machines?

A. Eleven of the Bartholf machines.

Fourth Cross-Interrogatory.—Do you employ any other kind of machines, and how many?

A. One of Singer's and two of Wheeler & Wilson's.

Fifth Cross-Interrogatory.—When did you introduce those three?

A. We had the one of Wheeler & Wilson's about three years, and the other two machines we have not had over six months.

Sixth Cross-Interrogatory.—While you have had these Bartholf machines in your factory, have you also had work done in your business by sewing machines other than those you have mentioned as working in your factory, and if so, what kind of machines, and what number of them?

A. We have had no other machines in our factory, but we have had all the cap fronts for years bound on the Singer machine, that work being given out. We have also had our tips quilted more or less for four or five years on the Wheeler & Wilson machines, that work being given out also.

Seventh Cross-Interrogatory.—You say you have found the Bartholf machines the best for sewing cap bodies. What other machines have you used for that purpose?

A. We have used the Wheeler & Wilson machine a little on cap bodies, but never the Singer machine.

CHARLES C. BAXTER.

City and County of New-York, ss.:—On this 26th day of July, 1860, before me personally, came the above named Charles C. Baxter, and made an oath that the foregoing deposition by him subscribed contains the whole truth and nothing but the truth. The said deposition is taken at the request of Elias Howe, Jr., to be used on the hearing of his application for an extension of his patent of September, 1846, before the Commissioner of Patents, at his office, on the — day of ——— 1860. The opponents of said application were duly notified, as appears by the original notices hereto annexed, and attended by Samuel Blatchford, Esq., of counsel. Certified by me,

HORACE ANDREWS,

Commissioner of Deeds.

GEORGE P. CLAPP, being duly sworn, doth depose and say, in answer to interrogatories proposed to him by Causten Browne, Esq., of counsel for Elias Howe, Jr., as follows:

First Interrogatory.—What is your name, age, residence and occupation?

A. George P. Clapp; aged fifty-one; residence, Boston; I am at present in the liquor business.

Second Interrogatory.—Have you ever been in the clothing or tailoring business, and from what time to what time?

A. I have. As apprentice, about 1822, and I continued in the business until a little over two years since.

Third Interrogatory.—What was your business, and where were you employed in 1845?

A. I was in the clothing or tailoring business in the employment of John Simmons & Co., Quincy Hall, Boston.

Fourth Interrogatory.—Do you remember a sewing machine being tried there in that year, and whose machine it was, or who brought it there?

A. I do. I am not certain as to the precise time; it was either in the fall of 1845 or the spring of 1846. It was Mr. Howe's machine—Mr. Elias Howe, Jr.

Fifth Interrogatory.—What did he bring it there for?

A. He brought it there for the purpose of introducing his machine, and for the purpose of having Mr. Simmons purchase the machines.

Sixth Interrogatory.—Do you remember any trial of speed which took place there at that time in the sewing of seams, between the machines and a number of the sewing girls; if so, will you state fully and particularly all about it?

A. I do. I recollect Mr. Howe's running the machine against five girls. The object was to see how fast the machine would sew, or to see if five girls could do the work of the machine.

Seventh Interrogatory.—Will you state now what sort of work you did?

A. We sewed straight seams; the inside seams of coat sleeves, lengthwise of the sleeves.

Eighth Interrogatory.—Who conducted the experiment?

A. Mr. Howe worked the machine. I was present. The trial between the machine and the girls was left to me to decide which did the fastest work and the best work.

Ninth Interrogatory.—What sort of hands were selected, good, bad, or indifferent?

A. The best and fastest.

Tenth Interrogatory.—Was the machine run by hand or by foot?

A. By hand.

Eleventh Interrogatory.—Which came out ahead in time, the machine or the five girls?

A. The machine was a little ahead. If I recollect right, there were five pieces of cloth, one for each girl, and Mr. Howe had five also. The pieces were of the same length.

Twelfth Interrogatory.—How fast was the machine run, compared with the speed which it was capable of running at, and how fast were the girls required to sew in comparison with their ordinary rate of sewing, to come out as they did?

A. The machine was run as fast as it could be run cleverly by hand. The girls sewed as fast as they could; much faster than they were in the habit of sewing. They could not have kept up that speed through the day, nor for one hour.

Thirteenth Interrogatory.—How did the character of the work, as to strength and neatness, done by the machine compare with that done by the girls?

A. The work done on the machine was the neatest and strongest.

Fourteenth Interrogatory.—How did the work done on the machine compare with what you call good hand sewing?

A. Their sewing was very good, but the machine was better.

Fifteenth Interrogatory.—Have you seen that machine since, and when, and where?

A. I have. I saw it to-day, at Mr. Howe's office, in Broome-street.

Sixteenth Interrogatory.—Did you see any sewing work done upon it; and if any body was present with you at the time, state his or their name.

A. I did. Mr. Fisher, Mr. Tucker and Mr. Raymond were there at the time?

Seventeenth Interrogatory.—What kind of sewing was done, and was the machine run by hand or was it speeded up?

A. Straight seam. It was speeded up.

Eighteenth Interrogatory.—Who kept the time of the sewing?

A. Mr. Fisher.

Nineteenth Interrogatory.—How many stitches did the machine put in in a minute, and what was the character of the sewing as to neatness and strength?

A. I think it was one hundred and sixty-three in thirty-five seconds. The sewing was well done. It was very neat and strong; sufficient for any purposes in the trade.

Twentieth Interrogatory.—What is the condition of the machine as to its strength and repair at the present time, and if made entirely strong, how much faster, if any, could it have been run, in your judgment, and make good sewing?

A. I am not acquainted enough with the machine to answer that question.

Twenty-first Interrogatory.—How many stitches of the same kind of sewing, and upon the same material, could be put in by hand in ordinary regular hand sewing?

A. Perhaps thirty in a minute.

And on his cross-examination, by Samuel Blatchford, Esq., for opponents, as follows:

First Cross-Interrogatory.—How long after the trial of the machine against the girls did you continue in Simmons' establishment?

A. About a year.

Second Cross-Interrogatory.—Did the machine, after Mr. Howe brought it there, remain there for any length of time at any time; and if so, for how long?

A. It remained there some little time, perhaps a week or ten days. I don't recollect the precise time.

Third Cross-Interrogatory.—Did Simmons & Co. buy any of Howe's machines while you remained with them, or was any other one of his machines used by them except the one you have referred to?

A. They did not buy any of them, to my knowledge, and they did not use any other one of his machines.

Fourth Cross-Interrogatory.—Can you swear that when you saw the machine operate to-day it was, in all particulars, both as to its feed apparatus, mode of making tension on the thread, mode of tightening the stitch, and all other respects, in the same condition that it was in when you saw it run the sweepstakes with the five girls?

A. As far as I can remember, it was the same.

Fifth Cross-Interrogatory.—Can you tell us what sort of feeding apparatus it had then, and what sort it has now?

A. I am not sufficiently acquainted with machines to know all the points in them. If I understand what you mean, it was fed from a spool then, the same as now, and had a shuttle. It was also fed from the shuttle, I suppose, in part.

Sixth Cross-Interrogatory.—What sort of feed apparatus had it then, and what sort has it now for moving the cloth along to the needle to receive a new stitch?

A. I don't know, as I am not sufficiently acquainted with that particular part of the machine to give an opinion.

Seventh Cross-Interrogatory.—Are you sufficiently acquainted with the modes it employed then and now to make tension on the thread, and to tighten the stitch, to be able to make a comparison as to the mechanism it used then and now for those purposes?

A. I only judge from the general appearance of the machine at that time, and what I saw to-day.

Eighth Cross-Interrogatory.—Did you see the machine run to-day during more than the thirty-five seconds you have spoken of?

A. Yes.

Ninth Cross-Interrogatory.—How much longer?

A. I can't say how much precisely. I should think not over three minutes.

Tenth Cross-Interrogatory.—What do you mean by saying it was speeded up?

A. It was operated by foot.

Eleventh Cross-Interrogatory.—Who did the sewing upon it during the thirty-five seconds, and who during the three minutes?

A. Mr. Elias Howe, Jr., during the whole time.

Twelfth Cross-Interrogatory.—What material or materials did you see the sewing done on with it to-day?

A. Broadcloth.

Thirteenth Cross-Interrogatory.—How many thicknesses?

A. Two.

Fourteenth Cross-Interrogatory.—Had you ever seen the machine from 1845 or 1846 until to-day?

A. No, Sir.

And on his *re-direct examination*:

Twenty-second Interrogatory.—How was the cloth held up in the machine as you saw it operated this morning, and how was it carried along through the machine?

A. If I understand the machine, it was held up by a plate with teeth fixed to it. I am not sufficiently familiar with ma-

chinery to give an answer as to how it was carried along through the machine.

Twenty-third Interrogatory.—So far as regards this plate with the teeth on it, was the machine as it was operated in 1845 or 1846, the same as when operated this morning, according to your recollection?

A. To the best of my recollection, it was precisely the same.

Twenty-fourth Interrogatory.—Did you, in 1845 or 1846, while the machine was at Simmons' place, examine it from time to time, so as to know how it then worked?

A. I did.

Twenty-fifth Interrogatory.—What is your belief and recollection as to whether the machine, as you saw it operate this morning, worked in any way differently from what it did in 1845?

[Objected to by Samuel Blatchford, Esq., as leading.]

A. I should think it worked the same. I did not see any difference, and don't remember any difference.

And being further cross-examined by Samuel Blatchford, Esq., of counsel for opponents, as follows :

Fifteenth Cross-Interrogatory.—The general features of the machine being the same to your eye to-day that they were in 1845 or 1846, do you think that you, not being familiar with machinery, could tell if alterations had been made in its feed motion or otherwise, to improve its working?

A. If there had been any material alteration, I think I could.

GEO. P. CLAPP.

*City and County of New-York, ss. :—*On this 27th day of July, 1860, before me personally came the above-named George P. Clapp, and made oath that the foregoing deposi-

tion by him subscribed contains the whole truth and nothing but the truth.

The said deposition is taken at the request of Elias Howe, Jr., to be used upon the hearing of his application for an extension of his patent of September 10th, 1846, before the Commissioner of Patents of the United States, at his office, on the
day of 1860.

The parties opposing such application were duly notified, as appears by the original notice hereto annexed, and appeared by Samuel Blatchford, Esq.

Certified by me,

HORACE ANDREWS,

Com'r of Deeds.

GEORGE FISHER, being duly sworn, doth depose and say, in answer to interrogatories proposed to him by Causten Browne, Esq., of counsel for Elias Howe, Jr., as follows :

First Interrogatory.—What is your name, age, residence and occupation?

A. George Fisher; age 40; residence, Cambridge, Massachusetts; am publisher of a weekly paper.

Second Interrogatory.—Have you examined the two printed statements, the original and the amendment, presented to the Commissioner of Patents by Mr. Howe, the applicant for this extension; I mean the statements of the ascertained value, &c., of his inventions?

A. I have.

Third Interrogatory.—Are you the Mr. Fisher referred to therein as connected with Mr. Howe's sewing machine enterprise at one time?

A. Yes.

Fourth Interrogatory.—So far as you have any knowledge, and particularly so far as those statements refer to transactions in which you took part, are the statements correct, to the best of your recollection and belief?

The counsel for the opponents objects to this question for the following reasons: 1st. Because it is leading. 2d. Because it is entirely inadmissible and unwarranted by practice or principle to prove the truth of the statement of the patentee in such a lumping way. 3d. Because it presupposes necessarily, that unless proved by the witness in that way it could not be proved by him.

Question withdrawn.

Fifth Interrogatory.—So far as you have any knowledge, and particularly, so far as those statements refer to transactions in which you took part, what is your recollection and belief as to the truth or error of such statements?

(The same objections to this question as to the one last put and withdrawn.)

(Counsel for Mr. Howe states that he examines the witness as to the statements in this form with a view to save time, and expecting that he will be cross-examined in detail, if it is considered expedient so to do.)

(Counsel for opponents respectfully suggests, that if the witness were to be so cross-examined in detail, as Mr. Browne kindly intimates, it is difficult to perceive how, in the aggregate, there would be any saving of time, and that the burden of such cross-examination cannot properly be imposed upon the counsel for the opponents, in such manner as to relieve the counsel for the applicant from the necessity of pursuing the usual legal and orderly manner of examining a witness.)

(The counsel for Mr. Howe suggests, that the time saved would be precisely that which would otherwise be spent in the direct examination, and submits the competency of the question to the commissioner.)

A. So far as they relate to any thing in which I was concerned, I have no doubt they are correct, with one exception. That exception is the amount which he paid to me when I sold out to him. It is five hundred dollars more than he states.

So far as my knowledge extends, with that exception, I should say that the statements were no doubt correct.

Sixth Interrogatory.—Who furnished the money which you just spoke of as paid by Mr. Howe?

A. Mr. Bliss, I always supposed.

Seventh Interrogatory.—Did you witness an experiment of sewing with the Howe machine to-day, and with what Howe machine?

A. I did ; with the original machine, which he constructed in my house.

Eighth Interrogatory.—If there was any difference whatever in the condition or organization of the machine as operated to-day, and as originally constructed, will you explain such difference fully?

A. The only difference I noticed, was that it was operated with the foot instead of the hand.

Ninth Interrogatory.—Where was the experiment conducted, and who present, and who operated the machine, and will you state what sort of sewing was done upon it?

A. The experiment was conducted at Mr. Howe's office in Broome-street, in the presence of Mr. Tucker, Mr. Clapp, Mr. Inglis, and Mr. Raymond and myself. Mr. Elias Howe, Jr., operated the machine. It was the common lock stitch, such as the Wheeler & Wilson machine makes. It was done on broadcloth.

Tenth Interrogatory.—Who kept the time of the sewing?

A. I did.

Eleventh Interrogatory.—What number of stitches did the machine put into the cloth in a minute or in half a minute?

A. It sewed one hundred and sixty-three stitches in thirty-five seconds.

Twelfth Interrogatory.—How well did it sew it, as compared with good hand sewing of the same description and on the same material?

A. I should say it sewed it as well as it was possible to sew it.

Thirteenth Interrogatory.—What condition was the machine in as to strength or repair for the purpose of bearing a high degree of speed?

A. I should say it was not strong enough to bear a very high degree of speed.

Fourteenth Interrogatory.—If made of larger size, and with the ordinary strength of full sized working machines, and of precisely the same construction, will you say, if you can, how many stitches it could have been run to this morning with the same success?

A. I have no doubt it could have been run as many stitches as the machines that are made this day, and with the same success, or very nearly the same.

Fifteenth Interrogatory.—Do you know how many such stitches can be put into such material in ordinary regular hand-sewing?

A. I don't know precisely. I should judge from thirty to fifty in a minute.

Sixteenth Interrogatory.—How, if you include stoppages for shifting the cloth in the hands of the workman, as the sewing advances?

A. There is stopping of sewing by machines to arrange work. I should judge that the stoppages in hand sewing

would bring the number of stitches down to about twenty-five. Similar stoppages in machine sewing would make a reduction of about one-half or one-third as much as in hand sewing, I should judge.

Seventeenth Interrogatory.—If you knew of any garment being made upon the machine when it was first got up, state what garment, for whom, when it was, how the work was done, and how it wore?

A. I had a suit of clothes that was sewed by this same machine that I saw this morning, in July, 1845. The work was done well, and wore as well as any work. Mr. Howe also had a suit made at the same time.

Eighteenth Interrogatory.—What degree of countenance or encouragement did Mr. Howe receive from his neighbors and friends in Cambridgeport, while he was employing himself in the invention and production of his machine.

A. I believe I was the only one that had any confidence in the success of the invention or machine. He was generally looked upon as very visionary in undertaking any thing of the kind, and I was very foolish in assisting him.

Nineteenth Interrogatory.—What amount of money or otherwise did Mr. Howe ever receive from you for the interest which you once had in his patents?

A. The first agreement was five hundred dollars. The rest was about fifteen hundred dollars, in board for himself and family, and in money.

Twentieth Interrogatory.—On Mr. Howe's return from England in 1849, did he apply to you for co-operation in enforcing his patent, &c., &c., and in the working of his invention, and with what success?

A. He did, with no success.

Twenty-first Interrogatory.—Why no success? What did you afterwards do with your interest, and why?

A. Because I had lost confidence in its ever paying any thing. I sold out my interest to either him or Mr. Bliss, I don't recollect which.

Twenty-second Interrogatory.—From your knowledge of Mr. Howe's exertions in inventing, perfecting and introducing his invention, and the difficulties with which he had to contend, what is your opinion as to the degree of industry, perseverance and fidelity with which he stuck to that enterprise, and carried it out?

A. I think it was of the highest degree.

And on his cross-examination, by Samuel Blatchford, Esq., of counsel for opponents, as follows:

First Cross-Interrogatory.—Have you ever been a machinist, or engaged in mechanical pursuits?

A. Not to much extent.

Second Cross-Interrogatory.—In what, to what extent, and how long?

A. I have worked some at carpenter work; I should say a year in my life.

Third Cross-Interrogatory.—Did the twenty-five hundred dollars, which you say you received on your sale to Howe or Bliss, of your half of Howe's patent, make you whole for all the money you had expended on and for it, with interest, and for your time devoted to it. If not, how much short, about?

A. The amount of money, with interest, together with the board, was about thirty-five hundred dollars, without reckoning my time any thing. I realized about five hundred dollars from Mr. Martin. Mr. Howe gave me five hundred dollars for a bond to transfer it to him within a certain time. That is the discrepancy in his account which I noticed. Then Mr. Howe and Mr. Bliss gave me about twenty-five hundred dollars besides. The time that I spent in trying to

introduce the invention into use, while Mr. Howe was gone to Europe, was worth, I should think, twenty-five hundred dollars; I mean for the whole period that I held an interest in the invention.

Fourth Cross-Interrogatory.—During the six and a half years that you had a half interest in the invention and patent did you receive any thing for the sale of rights or licenses of machines under it, except the five hundred dollars from Martin?

A. I did not.

Fifth Cross-Interrogatory.—How many machines were made under the patent, to your knowledge, during those six and a half years, under license?

A. None that I remember. I had twelve machines built myself, in order to introduce it. Those are all that I now remember as having been built during that time under the patent. I think Martin had some built. I merely suspect he had.

Sixth Cross-Interrogatory.—What was done with the twelve machines you say you had built; were they sold?

A. I have eight of them, I believe, now in my house. Four have been sold to carry on patent cases with.

Seventh Cross-Interrogatory.—When were these four so sold?

A. Since I sold out my right. I believe I have not sold any for three years now. I am not certain that more than three have been sold.

Eighth Cross Interrogatory.—Who were those sold to, and for what price?

A. One was sold to Mr. Howe. I don't recollect the price. I think it was fifty dollars. The other two were sold at fifty dollars each; one to Grover & Baker, or on their account, and the other, I think, Mr. Bradshaw, of Lowell.

Ninth Cross-Interrogatory.—At the time you assigned to Howe or Bliss your half of the patent in 1852, had you lost your confidence in the success of the patent?

A. I had made up my mind that it would cost more to introduce it and defend it than would ever be realized out of it.

Tenth Cross-Interrogatory.—Was not your re-assignment in 1852 made after you and Howe had obtained a verdict against Bradford, in a suit at law in Boston, in which the defence set up and relied on the invention of Walter Hunt?

A. That was a suit that I had very little to do with, and I don't know whether the verdict was before or after the assignment.

Eleventh Cross-Interrogatory.—In the sewing you saw done to-day, why was the machine timed by you for only thirty-five seconds?

A. Because it sewed through the piece of cloth—the entire length of the cloth.

Twelfth Cross-Interrogatory.—Did you ever see any of the twelve machines that you had made sew?

A. I did.

Thirteenth Cross-Interrogatory.—Did they sew more or less than a hundred and sixty-three stitches in thirty-five seconds, according to your best judgment?

A. I never timed them; I could not say.

Fourteenth Cross-Interrogatory.—Were they larger and stronger, or not, than the machine you saw to-day?

A. I should say they were about the same.

Fifteenth Cross-Interrogatory.—Do you think you ever saw any machine made according to Howe's patent sew more than one hundred and sixty-three stitches in thirty-five seconds?

A. I have seen this one sew more than that when it was first made, in trying experiments.

Sixteenth Cross-Interrogatory.—How many stitches do you mean, in your answer to the fourteenth direct question, when you say as many stitches as the machines that are made this day?

A. I believe it would be possible to run it up to a thousand, but practically, I believe, they cannot be run above five hundred per minute.

And on his re-direct examination :

Twenty-third Interrogatory.—Was the re-assignment of your interest in the Howe patent made in pursuance of a previous bond or agreement to do so?

A. I believe it was.

Twenty-fourth Interrogatory.—How long, prior to the conveyance, was such bond or agreement made, according to your recollection?

A. About a year and a half, I think.

GEORGE FISHER.

City and County of New-York, ss.:—On this 27th day of July, 1860, before me personally came the above-named George Fisher, and made oath that the foregoing deposition by him subscribed contains the whole truth and nothing but the truth.

The said deposition is taken at the request of Elias Howe, Jr., to be used upon the hearing of his application for an extension of his patent of September 10, 1846, before the Commissioner of Patents of the United States, at his office, on the 13th day of August, 1860.

The parties opposing such application were duly notified, as appears by the original notices hereto annexed, and appeared by Samuel Blatchford, Esq.

Certified by me,

HORACE ANDREWS,

Comm'r of Deeds.

Friday, July 27th, 1860.

Mr. Gifford present on behalf of the applicant, Elias Howe, Jr.; Mr. Blatchford present on behalf of George B. Sloat, and Williams and Orvis, opponents.

Adjourned to 2 P. M.

Mr. Giles and Mr. Blatchford present on behalf of the respective parties.

GEORGE R. TOWNSLEY, being duly sworn, doth depose and say, in answer to interrogatories proposed to him by Joel Giles, Esq., on behalf of the applicant, Elias Howe, Jr., as follows :

First Interrogatory.—What is your name, age, residence and occupation ?

A. George R. Townsley ; 39 years of age ; reside at Springfield, in Massachusetts ; and am a manufacturer of fine custom-made boots.

Second Interrogatory.—State whether you use any sewing machine in your work ; and if so, what kind of a machine, and for how long a time you have used it ?

A. I use the Howe machine, and have used it about eight years.

Third Interrogatory.—State, if you know, whether said machine was made by Elias Howe, Jr., or under his superintendence, and of whom you bought it ?

A. The machine I bought of A. B. Howe was made by one Bliss, under the superintendence of Elias Howe, Jr.

Fourth Interrogatory.—State what the repairs of said machine, if any, have cost while in your use ?

A. Up to a year ago I had never paid out one penny on it. About that time I paid one dollar for some little arrangement about it, some screw or something of the kind ; that is all I have paid up to the present time, and I consider it just

as perfect as the day it was bought, in all respects, and does as good work as ever.

Fifth Interrogatory.—State whether your machine is in constant use, or how otherwise?

A. The machine has been in constant use every day (Sundays excepted) since I bought it. I mean it has been in daily use, according to the wants of my business.

Sixth Interrogatory.—State what quality of work the machine does, and whether or not you could easily dispense with it?

A. Our class of work is the finest quality of custom work. I could not part with the machine, under any circumstances, unless I could replace it with a like machine. If the machine was to be taken out of the market, that is, if all machines were to be taken away, I could not get along, and a thousand dollars would be no inducement.

Seventh Interrogatory.—State how it compares with machines subsequently made for the same purpose?

A. Well, I have bought from A. B. Howe since that time two machines of that same class, and I find that the old machine is preferable to them all. I have taken considerable pains to post myself in regard to different machines as to doing our quality of work, and I have been unable to find any that does as good work as the old machine first made.

Eighth Interrogatory.—State whether the use of the machine is a saving in your business; and if so, state how much a hand with the machine will sew in any given time, compared with a hand sewer?

A. It is a very great saving in our business, a very great saving. How much I cannot say, as I have never figured on it to know. I should judge the machine, with a man running it, would do as much work in five minutes as a hand sewer in an hour's time of the same work.

Ninth Interrogatory.—State how the machine sewing compares with the hand sewing in quality.

A. Well, Sir, it is full as good as the hand sewing; I think stronger, from the fact that the machine sewing is perfectly true, the strain coming upon the whole alike; whereas in hand sewing, some stitches are liable to be up and others down, causing the strain to come upon a single stitch, whereas the strain is equal on the machine sewing on all stitches alike.

G. R. TOWNSLEY.

Subscribed and sworn to before me, }
this 27th day of July, 1860. }

R. E. STILWELL,

U. S. Comm'r.

Mr. Blatchford waives the cross-examination of this witness.

CHARLES INGLIS, being duly sworn, doth depose and say, in answer to interrogatories proposed to him by Joel Giles, Esq., on behalf of the applicant, Elias Howe, Jr., as follows:

First Interrogatory.—What is your name, your age, residence and occupation?

A. Charles Inglis; I am forty-two years of age; reside in Bridgeport, Connecticut, and am a coachmaker.

Second Interrogatory.—State whether you are acquainted with Elias Howe, Jr., and if so, when and where and under what circumstances you became acquainted with him?

A. I am acquainted with him, and made his acquaintance at the house of a mutual friend in London, on the Christmas of 1847.

Third Interrogatory.—State what he was then doing, and your knowledge of his subsequent employment and situation while in London?

He was in the employ of Mr. Thomas, at Newington Causeway, working upon sewing machines. He remained in the employ of Mr. Thomas about six or eight months after my first acquaintance with him. When he left Thomas, he hired a room from me and borrowed some tools to work with, and there built a sewing machine. With regard to his pecuniary

circumstances, I had a perfect knowledge of his being very poor. Before his wife, the first Mrs. Howe, left London for this country, he had frequently borrowed money from me, in sums of five pounds, and requested me to get him credit for provisions. On the evening of Mrs. Howe's departure, the night was very wet and stormy, and her health delicate; she was unable to walk to the ship; he had no money to pay the cab hire, and he borrowed a few shillings from me to pay it, which he repaid again by pledging some of his articles of clothing. Some linen came home from his washerwoman for his wife and children on the day of her departure; she could not take it with her on account of not having money to pay the woman. He has borrowed a shilling from me for the purpose of buying beans, which I saw him cook and eat in his own room. The machine that he built in that room he sold to a working man for £5, and took his note for it, which I got discounted for him by paying £1 for the discount. That £4 went partly to pay his passage here. I advanced what other money he wanted to pay the balance of his passage and provisions for the voyage. He drew a hand-cart with his baggage on it to the ship to save the expense of cartage. We both came out to New-York together in the steerage, and, on our arrival, went to a cheap emigrant boarding house. He wished to go to Boston to see his wife, who was dying, but hadn't the means to go there. He went to work as a journeyman machinist in New-York on the day after his arrival; but nine or ten days after that, I called at the post-office and got a letter for him from his father. He read some portions of it to me, stating the condition his wife was in, and showed me a ten dollar bill that his father had sent him in that letter, to enable him to get home. Since that time I have occasionally seen him two or three times a year, and, from my own knowledge, I have not been much acquainted with his pecuniary circumstances since his return. Mr. Howe and myself arrived in New-York, from London, in April, 1849.

Fourth Interrogatory.—State, if you know, what were Mr. Howe's habits of living and industry while in your room in London?

A. He lived as cheaply and economically as he could, and worked steady, late and early, at his machine.

Fifth Interrogatory.—State whether you saw any of his machines made for Mr. Thomas at work, and what kind and quality of work they performed?

A. I have frequently seen his machines at work at Mr. Thomas', sewing the cloth and leather together of gaiters. I have also seen it working at ladies' stays. The work appeared to me to be much more handsome than any sewing I had ever seen before. It was the first sewing-machine work I had ever seen done.

Sixth Interrogatory.—State, if you please, of what country you are a native?

A. I was born in Edinburg, in Scotland.

CHARLES INGLIS.

In answer to cross-interrogatories proposed to him by Samuel Blatchford, Esq., counsel for opponents, he says:

First Cross-Interrogatory.—Please to state, Mr. Inglis, whether you saw Mr. Howe's machine used in any establishment in England except Mr. Thomas', and how many of his machines you saw used at Thomas'?

A. No. I might have seen some six or eight used there at Mr. Thomas'. I saw the machine used which I have stated he made in his own room.

CHARLES INGLIS.

Subscribed and sworn to before me, }
this 27th day of July, 1860. }

R. E. STILWELL,

U. S. Com'r.

WILLIAM F. PROCTOR, being duly sworn, doth depose and say, in answer to interrogatories proposed to him by Joel Giles, Esq., in behalf of the applicant, Elias Howe, Jr., as follows:

First Interrogatory.—What is your name, age, residence and occupation?

A. William F. Proctor; thirty-four years of age; reside in New-York city, and am a machinist.

Second Interrogatory.—State whether you have been in the employment of I. M. Singer & Co., and if so, from what time to what time, and in what capacity.

A. I have; from February, 1854, to March, 1860, as agent and general mechanical superintendent.

Third Interrogatory.—State the means, if any, adopted by I. M. Singer & Co., to supply the public with sewing machines, and to instruct people how to use them.

A. They have several agencies in all the principal cities of the United States, and those general agents have their sub-agents in most every township, and some who travel from house to house with the machines in wagons. Besides having very elaborate printed instructions, each agent employs some one to instruct personally those who purchase.

Fourth Interrogatory.—State, as far as you know, whether said company keeps their agents fully supplied with machines for the market?

A. They do.

Fifth Interrogatory.—State, so far as you know, what character of workmen, as to competency, said company employs in their manufactory of machines, and what character of machines they make, and what grade of wages they pay their workmen?

A. They employ the best workmen, and always did; the best that can be had in the country. They make the best quality of machines that can be made; and they pay as high or higher average wages as any manufactory in the city.

Sixth Interrogatory.—State what preparation, if any, said company has made for increasing their manufacture of sewing machines to supply the market?

A. They have, besides their large manufactory in Mott-street, where they can manufacture six hundred machines a week, within eighteen months built a large factory on Delancey-street, two hundred feet front by one hundred and fifty feet deep, and five stories high. They have put in two steam engines of 140 collective horse power, and they have facilities there, by employing men, to manufacture two thousand machines a week, if necessary.

Seventh Interrogatory.—State whether their increased facilities for manufacture are now in use to supply the market, or how otherwise?

A. No Sir; they are not in use. They are not using half the facilities in the old shop or factory.

Eighth Interrogatory.—State why not, if you know the reason.

A. On account of the large quantity of poor infringing machines in the market, which cripples their business.

WILLIAM F. PROCTOR.

Subscribed and sworn before me, }
this 27th July, 1860. }

R. E. STILLWELL,

U. S. Commissioner.

Mr. Blatchford waives the cross-examination of this witness.

Adjourned to 10 A. M., the 28th instant.

HIRAM TUCKER, being duly sworn, doth depose and say, in answer to interrogatories proposed to him by Causten Browne, Esq., of counsel for Elias Howe, Jr., as follows:

First Interrogatory.—What is your name, age, residence and occupation?

A. Hiram Tucker; age 37; residence, Newton, Massachusetts; am a manufacturer of spring beds.

Second Interrogatory.—Where did you reside in 1845, and did you then know Elias Howe, Jr.?

A. In Cambridgeport, Massachusetts. I was acquainted with Mr. Howe.

Third Interrogatory.—Did you, about that time, and when, first, see his sewing machine?

A. In the fall of 1845.

Fourth Interrogatory.—When did you last see it?

A. This morning, at Mr. Howe's office, in Broome-street.

Fifth Interrogatory.—Were you present at the experiment of which Mr. Fisher and Mr. Clapp have testified?

A. I was.

Sixth Interrogatory.—How well and how fast did it sew this morning?

A. I examined the seam after it was finished. It was as good work as I have ever seen done by a sewing machine of any kind. I did not time the machine myself.

Seventh Interrogatory.—Are you connected in family with Mr. Howe?

A. I married his sister.

Eighth Interrogatory.—When did your principal acquaintance with Mr. Howe commence?

A. On his return from Europe, in 1849.

Ninth Interrogatory.—Where were his wife and family at that time, and what was their condition?

A. His wife and family returned from England, and came to the house that was occupied by myself and Mr. Elias Howe, Sen. They were very destitute. Mrs. Howe was very much out of health at the time, with consumption, with which she soon after died, about a fortnight after her husband's return.

Tenth Interrogatory.—Will you say fully in what condition, as to means, and as to health, and as to the possession of the ordinary necessities of life, Mr. Howe was when he returned from England, and where he came to live, and how he and his family obtained their board, and state any circumstances which occur to you happening at that time, and serving to illustrate his and their condition?

A. When Mr. Howe first returned from Europe, or very soon after, he came to Cambridgeport. He was in very destitute circumstances, having no means whatever. He and his family were entirely dependent upon the charity of myself and his father for support. He had nothing in the shape of wearing apparel, except what he had on at that time. Mr. Howe seemed to be very much worn out. I don't know that he could be called sick. He seemed to have been suffering from a great deal of anxiety of mind. He was very much troubled to know what he should do for himself and his family. He said he did not wish to be dependent upon his friends.

One thing occurs to me now to illustrate his poverty. At the time his wife died he was obliged to borrow garments of me to make a decent appearance at the funeral. I also bought shoes and other garments for his children.

Eleventh Interrogatory.—What do you know, if any thing, of his efforts at that time to get his sewing machine introduced, and to obtain settlement with or compensation from parties who were infringing his patent?

A. About the time of the death of his wife I moved to Roxbury, Mass., and Mr. Howe, with his children, went to board with me. He was employed about that time by what was called the "Mirror Marble Company," of which I was a member and manager. He was continually, or every day, saying something about parties who were infringing his machines, and advising with me as to the best course to pursue to be in a position to defend his rights. He commenced a correspondence with Lerow & Blodget, who were manufacturing a machine that he said infringed his patent. Part of

his correspondence he showed to me, and advised with me about it.

HIRAM TUCKER.

City and County of New-York, ss. :—On this 27th day of July, 1860, before me personally appeared the above-named Hiram Tucker, and made oath that the foregoing deposition by him subscribed contains the whole truth and nothing but the truth. The said deposition is taken at the request of Elias Howe, Jr., to be used upon the hearing of his application for an extension of his patent of September 10, 1846, before the Commissioner of Patents of the United States, at his office, on the 13th day of August, 1860.

The parties opposing said application were duly notified, as appears by the original notices hereto annexed, and attended by Samuel Blatchford, Esq.

Certified by me,

HORACE ANDREWS,
Comm'r of Deeds.

The further examination of witnesses on behalf of said Howe was then adjourned to July 28, 1860, at 10 A. M.

Attest,

HORACE ANDREWS,
Comm'r of Deeds.

New-York, July 28, 1860.

Pursuant to adjournment last noted, Causten Browne, Esq., appeared as counsel for said Howe, and Samuel Blatchford, Esq., as counsel for opponents; and thereupon the examination of witnesses, on behalf of said Howe, was continued as follows :

EZRA BAKER, being duly sworn, doth depose and say, in answer to interrogatories proposed to him by Causten Browne, Esq., of counsel for Elias Howe, Jr., as follows :

First Interrogatory.—What is your name, age, residence and occupation ?

A. Ezra Baker; age, 42; residence, Lynn, Essex County, Mass.; occupation, shoe manufacturer and dealer in sewing machines.

Second Interrogatory.—How long have you been in that manufacture, and in what special branch of it?

A. About twenty-five years; engaged in the manufacture of ladies' gaiter boots and shoes, including misses' and children's work.

Third Interrogatory.—Are you acquainted with the shoe manufacture generally in your neighborhood; and if so, will you state how many sewing machines there are at work now on boots and shoes in Essex County, Massachusetts?

A. I consider myself conversant with the manufacture of boots and shoes generally in Essex County, and, from the best of my knowledge and judgment, I should say there was five thousand sewing machines and upwards, in that county, in stitching boots and shoes.

Fourth Interrogatory.—To what extent has machine sewing taken the place of hand sewing on such work in that county?

A. So far as the ladies' gaiter boots and shoes are concerned, which come immediately under my notice in Lynn, the machines have entirely taken the place of hand sewing.

Fifth Interrogatory.—How is it as to other departments of the boot and shoe manufacture, if you have the means of forming a judgment?

A. So far as I have been able to judge of that, from my intercourse with the manufacturers in different parts of the State, they use the machines in preference to hand sewing, whenever it can be done.

Sixth Interrogatory.—What proportion, in amount, does the ladies' and misses' gaiter boot and shoe business in Massachusetts bear to the entire boot and shoe business in that

State, according to your best judgment, at a moderate estimate?

A. It would exceed one-half.

Seventh Interrogatory.—As to the ladies' gaiter boot and shoe business, to what extent do you think the manufacture could be carried on, if at all, at the present time, without the use of the machines?

A. To the best of my judgment, they could not manufacture more than half the number of pairs that they do now. I mean that they could not do so at all. They could not get the stitching work done.

Eighth Interrogatory.—What machines have been used in your knowledge in this business, and what are now used?

A. The Leavitt machine, which is Howe's original patent, the Singer machine, the Ladd & Webster machine, the Grover & Baker machine and others.

Ninth Interrogatory.—How does the work done in the boot and shoe manufacture by these machines, and particularly the Leavitt machine, compare with hand work as to strength and durability?

A. We prefer it to hand work, and find by our experience that we get less damaged goods, by rips in the upper, than we used to by hand.

Tenth Interrogatory.—Of how many hand workers on ladies gaiter boots and shoes will one machine do the work?

A. From six to eight.

Eleventh Interrogatory.—How are the machines in your neighborhood ordinarily owned and worked?

A. They are, a large proportion of them, owned by operatives, (women,) who use them at home.

Twelfth Interrogatory.—At what price per pair do they now do the work by machines, as compared with the price by hand?

A. They do it at one-fourth—about one-fourth of what it costs by hand.

Thirteenth Interrogatory.—Do they earn any more wages per day than they used to by hand, and if so, how much more?

A. They do. I should say from double to three times as much as they used to.

Fourteenth Interrogatory.—What has been the effect of the introduction of the machines, if any, as to reducing the cost to the public of the commoner kind of shoes and of ladies' boots, and to what is this saving due?

A. It has reduced the price of the commoner kind of gaiter boots, which come more directly into the hands of the working classes, fully one-half—more than one-half—I should say. This is owing to the lessening the price of work, and the facilities which enable the manufacturers to manufacture more largely, and consequently at less profit.

Fifteenth Interrogatory.—Upon the whole, how does the cost of materials now compare with the cost when the work was all done by hand?

A. The cost of materials is full as much as it was then.

Sixteenth Interrogatory.—What is the amount of the boot and shoe business of Massachusetts at the present time annually?

A. I should say fifty-five millions.

Seventeenth Interrogatory.—Of this amount, what proportion, at a moderate estimate, is paid for sewing labor?

A. Judging from my vicinity, I should say about one-eleventh.

Eighteenth Interrogatory.—How many cases are annually sent out of New-England, and how many are annually used in New-England?

A. About eight hundred thousand cases are sent out, and

two hundred thousand cases consumed in New-England. This is for the State of Massachusetts.

Nineteenth Interrogatory.—What is the amount of business in boots and shoes done annually in the city of Lynn?

A. Something like twelve millions.

Twentieth Interrogatory.—How much of the stitching of this work is done by machine?

A. Almost the whole of it.

Twenty-first Interrogatory.—At what rate should you judge the boot and shoe business in Massachusetts, and the use of sewing machines in connection therewith, have increased in the last two years, or any other time you choose to measure by?

A. I should say the business had increased in my own county three-fold, in the last six years. I mean the production has so increased.

Twenty-second Interrogatory.—What was the practice under the hand system as on the distribution of work in places distant from the manufactory, and what advantage does the use of machines afford in that particular?

A. Our practice, before the introduction of machines, was to send work into the country, covering an area of one hundred and fifty miles around us, to be stitched, and from four to six weeks would be consumed in getting it back to the manufactory, before they could be put in the bottomer's hands. Under the machine stitching system it don't average one week's time. The work is all done in the immediate neighborhood.

EZRA BAKER.

City and County of New-York, ss.:—On this 28th day of July, 1860, before me, personally appeared the above-named Ezra Baker, and made oath that the foregoing deposition by him subscribed contains the whole truth and nothing but the truth. The said deposition is taken at the request of Elias Howe, Jr., to be used upon the hearing of his application

for an extension of his patent of September 10th, 1846, before the Commissioner of Patents of the United States, at his office, on the 13th day of August, 1860. The parties opposing said application were duly notified, as appears by the original notices hereto annexed, and attended by Samuel Blatchford, Esq.

Certified by me,

HORACE ANDREWS,

Comm'r of Deeds.

Saturday, July 28th, 1860.

Mr. Giles present on behalf of the applicant, Elias Howe, Jr.; Mr. Blatchford present on behalf of George B. Sloat, and Williams and Orvis, opponents of extension.

Adjourned to 12 M. this day.

Counsel for the respective parties present.

JOSEPH MURRAY, being duly sworn, doth depose and say, in answer to the interrogatories proposed to him by Joel Giles, Esq., on behalf of the applicant, Elias Howe, Jr., as follows :

First Interrogatory.—What is your name, your age, residence and occupation?

A. Joseph Murray; 30 years of age; reside in New-York city, and am a machinist.

Second Interrogatory.—State whether you have been in the employment of the Wheeler & Wilson Manufacturing Company; and if so, from what time to what time, and in what capacity?

A. I have. I went with them in the fall of 1852, and have continued with them up to the present time, as superintendent of the machine department, at their office in this city.

Third Interrogatory.—State the means, if any, adopted by

said company to supply the public with sewing machines, and to instruct people how to use them?

A. We have central agents in every town or city throughout the Union; they have sub-agents in every village, and they have parties to call upon people to instruct them in the use of the machines, and also teach at their offices. They frequently have travelling agents to sell and instruct at the same time.

Fourth Interrogatory.—State, as far as you know, whether said company keep their agents fully supplied with machines for the market, and the extent of said company's means of manufacturing machines?

A. We keep the agents and customers fully supplied. We have machinery for facilitating the manufacturing to a much greater extent than the present demand. The capacity for making machines is sixty thousand a year; we are now making about twenty thousand. We have had four hundred and fifty-two men making machines; the present number of men is about two hundred.

Fifth Interrogatory.—State, so far as you know, what character of workmen, as to competency or skill, said company employs in their manufactory of machines; and what is the character of their work; and what rate of wages they pay their workmen compared with machinists on other kinds of work?

A. They employ the best workmen or mechanics that can be had; and their work is of the best quality; and they pay their workmen higher wages, as a general thing, than machinists usually get on other kinds of work.

Sixth Interrogatory.—State, if you know, whether the demand for their machines varies in amount from time to time, and the cause of such variation, if known to you?

A. It varies very much at times, owing to the numbers of inferior machines that are brought into market at different times.

Seventh Interrogatory.—State, so far as you know, the

dimensions of the manufactory of said company, and where situated, and their system of making machines, whether by hand or by machinery?

A. The dimensions of the building for manufacturing is 510 feet front and 260 feet deep, and is three stories high. Their system is very perfect, all the parts of the machines being made by machinery.

Eighth Interrogatory.—State, if you know, what power they use to drive their factory, whether steam or water power; and if steam, how much?

A. Steam power. It is a very large double engine, but the power I don't know.

Ninth Interrogatory.—State if you know, whether said company keep machines finished, in whole or in part, constantly on hand to meet the demands of the market upon short notice?

A. We have them in whole and in parts; a large stock of the machines and parts on hand.

Tenth Interrogatory.—State, if you know, the estimated value of the property of said company invested in the manufacture of sewing machines?

A. I do not know.

JOSEPH MURRAY.

Subscribed and sworn to before me, }
the 28th July, 1860. }

R. E. STILLWELL,

U. S. Commissioner.

Mr. Blatchford waives the cross-examination of said witness.

JONATHAN T. ELLIS, being duly sworn, doth depose and say, in answer to interrogatories proposed to him by Joel Giles, Esq., on behalf of the applicant, Elias Howe, Jr., as follows :

First Interrogatory.—What is your name, age, residence and occupation?

A. Jonathan T. Ellis; 27 years of age; reside in New-York, and for the last four years have been receiving and shipping clerk for the Wheeler & Wilson Manufacturing Co.

Second Interrogatory.—State what you do in their employ as your regular business?

A. I receive an invoice of all the machines received in New-York from the factory in Bridgeport, Connecticut, and I examine the invoice, in connection with the machines, to know whether the machines received compare with the number invoiced from the factory, and receive all the orders to be shipped, select the machines to fill the orders, mark the boxes and ship the machines, keep a record of the persons I ship machines to, when and how shipped.

Third Interrogatory.—State, so far as you can, the number of agents to which said company sends their machines, and whether they promptly fulfil all orders for machines?

A. There are 260 principal agents, and these agents have sub-agents, and I am able now to fill all orders from agents usually the first day the order is received, and always on the second day, if there is a conveyance to reach them.

Fourth Interrogatory.—State, as near as you can, the average number of machines sent through you, as you have stated, per week or month, as you may be able, or the largest and smallest number for any given time.

A. We send away from 300 to 700 or 800 a week, and sometimes larger; rarely less than 300.

J. T. ELLIS.

Fifth Interrogatory.—State, if you know, whether said company has a retail trade from their store in this city, and whether they supply agents in any section of the country directly from their factory, in addition to the machines which pass under your inspection, as before stated.

A. The retail trade in this city will average about twelve a day, and the agencies east of Bridgeport, Connecticut, are mainly supplied directly from the factory.

Sixth Interrogatory.—State whether said company has any system, and if so, what, of numbering their machines, and the parts thereof, whereby they can supply any parts which may be wanted by their customers, from time to time, to supply the wear or breakage, or other defect, if any, in the machines in use.

A. With every machine that I send out there are printed directions for using the machine, and on that direction sheet there is a cut of the machine, and the different parts of the machine are numbered on the cut; and if a customer or agent wants a part of a machine, he designates that part by the number on the cut, and we have those parts constantly on hand, and I take them up as they are wanted by each number as they are called for; any part of one machine will fit the corresponding part of another machine.

J. T. ELLIS.

Subscribed and sworn to before me, }
the 28th July, 1860. }

R. E. STILWELL,

U. S. Com'r.

Mr. Blatchford waives the cross-examination of the witness.

Adjourned to Monday, the 30th, at ten o'clock.

JAMES W. MILLAR, being duly sworn, doth depose and say, in answer to interrogatories proposed to him by Causten Browne, Esq., of counsel for Elias Howe, Jr., as follows:

First Interrogatory.—What is your name, age, residence and occupation?

A. James W. Millar; residence, 81 Bleecker-street; occupation, tailor.

Second Interrogatory.—With what firm are you connected?

A. Brooks Brothers are my employers. They are clothing manufacturers and dealers.

Third Interrogatory.—How long have you been in the tailoring business, and how long in their employ?

A. Forty years, including my apprenticeship. I have been in their employ about six years.

Fourth Interrogatory.—How long has that house been established, and what amount of business is it now doing annually?

A. It is an old house kept up from father to son, and established, to my knowledge, for over thirty years. They do a business of over a million annually.

Fifth Interrogatory.—Does the house employ sewing machines in their manufacture, and in what departments of it, and what kind of machines, and how many, so far as you have means of knowledge?

A. They employ sewing machines, and they are used, more or less, on all kinds of work, except fine frock and dress coats, and on them the ornamental work of the shoulders.

They use Singer and Wheeler & Wilson's. There is a variety of others in the hands of those who do work for us outside of the store, and of those I know but little. We have about twenty machines in the store.

Sixth Interrogatory.—Will you state what proportion of all your sewing, in the store and out of it, is done upon sewing machines, as nearly as you can estimate?

A. I should think that there was about three-fourths, more or less.

Seventh Interrogatory.—About what amount does the house pay annually, in all, for sewing labor?

A. About two hundred thousand dollars.

Eighth Interrogatory.—Will you state the result of your general observation, or of any particular investigation which you may have had occasion to make, as to the saving in time in the manufacture of ordinary heavy or winter, spring and fall outside clothing, when done upon sewing machines and when done by hand?

A. On making inquiries from the hands, and on my own observations, I find that an overcoat made from Esquimaux, kersey or beaver cloths, the ordinary materials for overcoats, the last two years, if made in the style we now make them on the machines, three days when made by machine, and six days when made by hand. Business coats take two days by machines, and three days by hand.

On fine pants and vests, there is a gain of three hours in twelve, and in the great class of linen work and light work, a full gain of one hundred per cent. in time.

Ninth Interrogatory.—What classes of work, if any, are you able to make by the machines which cannot be produced by hand as well?

A. All Esquimaux, kersey or any other heavy goods. Also Marseilles, ducks, alpacas and the like summer materials, all quiltings to linings, and stitching of the shoulders.

Tenth Interrogatory.—How much better are such goods produced by the machine, and will you state any particular advantages in relation to any particular goods which occur to you?

A. In regard to the Esquimaux goods, such work as is produced on them by the machines could not be done by hand. And on white Marseilles vests, especially, it would be next to an impossibility to make one by hand as handsome as is done by the machine. In regard to the quilting and other ornamental work, the machine does it far superior, with a saving of from three to four hundred per cent. of time.

Eleventh Interrogatory.—Upon an average, as nearly as you can make it, of all the work that is done by the Brooks Brothers, by the machine, constituting, as I understand,

about three-fourths of their sewing work, what per centage of time do you think is saved by having it done by machine instead of by hand?

A. There is about one-third saving in the labor—making a rough estimate.

Twelfth Interrogatory.—Your machine sewing costing one hundred and fifty thousand dollars per annum, how much money does this saving represent; that is, how much more would this cost for labor if done by hand, as nearly as you can estimate?

A. It would cost seventy-five thousand dollars more if done by hand; that is, the same amount of work.

Thirteenth Interrogatory.—What proportion of the machine sewing done for your firm consists in ornamental work on overcoats?

A. On fine overcoats, when the linings are quilted, and made in our best manner, there is one hundred per cent. saving in time; that is, in making the coat.

Fourteenth Interrogatory.—In the making of overcoats, is there any increase in the ornamental stitching or other work, going to the handsome appearance of the garment, due to and occasioned by the increased facility of putting in such work by the machine?

A. There is.

Fifteenth Interrogatory.—How great an increase?

A. The increase is very large. So much so, that if there were no machines it would not be done, on account of the expense. But if it was done by hand, the expense on some garments would be more than double what it is now. As for degree of finish, it could not be done by hand. It would be impossible.

There is a class of work which we have done to these coats for which we pay one dollar and a half done by machine, that could not be done for five dollars by hand. This

difference amounts to from five to ten thousand dollars a year.

Sixteenth Interrogatory.—Is any additional charge made to your customers for this extra work?

A. There is no extra charge made for the difference which I have just stated.

Seventeenth Interrogatory.—Have you a general knowledge of the extent and character of the tailoring business carried on in New-York City?

A. I have a general knowledge.

Eighteenth Interrogatory.—What proportion of the machine made clothing, made and sold in New-York City, do you think Brooks Brothers make and sell, including all that is sold to go out of the city as well as that which is used in the city?

A. Not one hundreth part.

Nineteenth Interrogatory.—Do the facts you have mentioned in the case of Brooks Brothers, as to the proportion of work done by machine and by hand, and the saving of time thereby, exist in relation to other tailoring establishments in the city?

A. I should think it was about the same.

Twentieth Interrogatory.—Do the facts you have mentioned as to extra finish or ornamental work, put upon overcoats by sewing machines, exist in the case of the other establishments?

A. They do.

Twenty-first Interrogatory.—What has been your observation as to the existence of any prejudice on the part of regular tailors against the use of sewing machines; and what effect, if any, has this had in forcing the machine, in the first place, into inferior hands?

A. There has been a great deal of prejudice against the

machines among the operating tailors from the first start, their object being to crowd the machines out. It was carried to that extent that those who knew nothing about tailoring were the first to take hold of them. Then came the poorer class of tailors ; and so came along each one encroaching on his neighbor, forcing him to buy a machine, till now they are more or less used on all work.

Twenty-second Interrogatory.—How does the quality of the sewing done by the machines in your business compare generally with that done by hand as to beauty and strength ?

A. That depends altogether on the operator. A poor operator will make worse sewing with the machine than by hand ; but one that understands the business properly will make stronger and handsomer sewing than by hand.

Twenty-third Interrogatory.—What has been the effect, if any, of the introduction of the sewing machines upon the ready-made clothing business, as to enlarging and developing it, making it profitable and desirable ?

A. It has enabled them to place on their counters a much superior class of clothing, and in a much shorter time, thereby shortening the season. The consequence has been, that the clothing business the last six years has increased a large amount.

Twenty-fourth Interrogatory.—What effect has the introduction of the machines had as to increasing or diminishing the demand for good labor at remunerative prices ?

A. I should not think there had been any difference as to that.

Twenty-fifth Interrogatory.—What has been its effect as to giving employment to any new classes of operatives, and how, and also what effect has it had upon the condition of the sewing classes as to comfort, health, &c. ?

A. It has enabled many a tailor and tailoress to continue at their work, who would have had to do something else on account of losing their sight, in part, by many years of labor ;

and there are many whose health would not admit of sitting so many hours as they would have to do to earn a livelihood who can now make one by using the machine. From inquiries I have made among the workmen and women I find it has added much to their comfort and health.

Many a child is employed at wages on the machines who would otherwise be idle; that is, the machines give them basting work, &c., to do. They do not operate the machines.

The further taking of testimony on the part of said Elias Howe, Jr., was then adjourned to July 30, 1860, at 10 o'clock, A. M.

Attest, HORACE ANDREWS,
Com. of Deeds.

New-York, July 30th, 1860.

Pursuant to adjournment last noted, Causten Browne, Esq., appeared in behalf of Elias Howe, Jr., and Samuel Blatchford, Esq., for opponents, and the examination of witnesses was continued as follows :

JAMES W. MILLAR, being cross-examined by Samuel Blatchford, Esq., of counsel for opponents, as follows :

Cross-examination waived by Samuel Blatchford, Esq., of counsel for opponents.

JAMES W. MILLAR.

City and County of New-York, ss. :—On this 30th day of July, 1860, before me personally came the above named James W. Millar, and made oath that the foregoing deposition by him subscribed contains the whole truth and nothing but the truth.

The said deposition is taken at the request of Elias Howe, Jr., to be used upon the hearing of his application for an extension of his patent of September 10th, 1846, before the Commissioner of Patents of the United States, at his office, on the 13th day of August, 1860.

The parties opposing were duly notified, as appears by the original notices hereto annexed, and attended by Samuel Blatchford, Esq.

Certified by me,

HORACE ANDREWS,
Com. of Deeds.

EDWIN B. STIMPSON, having been duly sworn, doth depose and say, in answer to interrogatories proposed to him by Causten Browne, Esq., counsel for Elias Howe, Jr., as follows, viz. :

First Interrogatory.—What is your name, age, residence and occupation?

A. Edwin B. Stimpson; age, 33; residence, Metuchen, New-Jersey; am a gaiter and shoe upper manufacturer.

Second Interrogatory.—How long have you been engaged in that business, and where?

A. In England, before coming to this country, about eight years, and in this country seven years. I made uppers by hand in England.

Third Interrogatory.—Do you employ sewing machines in your business, and what kind, and how long have you had them?

A. I had the first of Howe's machines about seven years since. I have used several Howe's machines, and have two now, and three of Singer's machines, and one of Nicholl's, of Boston.

Fourth Interrogatory.—What was, and has been the effect upon your own business, of the introduction of Howe's machines in making uppers, as to the saving of time or labor &c., &c., and increase of profit in the business, and how well has the work been done as compared with hand work?

A. I suppose we are able to do with the machines about six or eight times as much as we did previously by hand; and the profit to all concerned has been considerable; and it has

also caused a great demand for work. Previous to the introduction of the machines the practice of boot and shoe makers was to make the uppers and fit them, and finish the boots and shoes all themselves. Since that time, it has been thrown into the hands of upper manufacturers; that is, the manufacture of uppers has become a separate business. In consequence of their being able to produce the uppers so much quicker and cheaper, it has lowered the price of gaiters and shoes, consequently greatly increasing the demand.

Fifth Interrogatory.—How much has it lowered the price, how much has it increased the amount manufactured, and why?

A. It has lowered the price, you might say, a third. I should think it has increased the manufacture of gaiters and shoes more than fifty times in the City of New-York. There is no doubt it has diminished the coarse boot trade.

Sixth Interrogatory.—What has been the effect of the introduction of the machines as to making a demand for the finer qualities of leather?

A. It has caused a great demand for fine qualities of leather of all kinds; and most of that leather is imported.

Seventh Interrogatory.—How much, if any, of the business of making uppers is now done by hand?

A. I should think not more than one hundredth part.

Eighth Interrogatory.—What advantages, if any, to the shoe trade arise from the separate manufacture of uppers, as you have testified, as to packing, storing, &c., and what is the practice of shoe men since the business was so divided in regard to the bottoming of their boots and shoes?

A. The benefit of this division of the trade to the journeymen has been very great. It has enabled the journeymen to buy a stock of uppers, bottoming them when ordered, as well as in a large concern. The advantage of packing uppers has been the means of their being sold in other States.

Ninth Interrogatory.—What are the best machines in your judgment now in use for stitching uppers, or working in leather generally?

A. Howe's are very superior to any others for leather work, making the most solid work.

Tenth Interrogatory.—Where do shoe manufacturers get their elastic gores, and for what purpose are they mainly used?

A. The finer qualities of gores are imported; and, since the introduction of sewing machines, they have been very extensively used in the manufacture of gaiters, and the importation has increased, I should think, twenty-five hundred per cent., or about half the amount of the increase of the shoe manufacture.

Eleventh Interrogatory.—What has been the effect of the introduction of the machines upon the extent of employment of operatives, and upon their wages and upon their condition?

A. Much greater numbers have been employed, including large numbers of women, and at much higher wages than they previously made stitching by hand, and they work a great many hours less in the day. Women worked at stitching by hand early and late; now their time is regular from eight to ten hours a day by the machine.

Twelfth Interrogatory.—Will you state, as nearly as you can estimate, what amount of business is done annually in New-York City in the making of uppers?

A. I should think about three hundred thousand dollars. That is low enough. I have not included scores of small manufacturers up town.

(And on his cross-examination, by Samuel Blatchford, Esq., of counsel for opponents, as follows:)

First Cross-Interrogatory.—You state that you have had several of Howe's machines, besides the first one that you got

seven years since, and the two that you have now. How many do you mean by several?

A. Two or three. I think I have had three. I think the whole six were A. B. Howe's manufacture, under the Elias Howe patent.

Second Cross-Interrogatory.—In speaking of Howe's machines in your answer to the ninth direct question, as being superior for leather work, do you mean those made by A. B. Howe?

A. Yes, Sir. The cylinder machine, with a wheel feed. All the six I had were of that kind.

Third Cross-Interrogatory.—Is not a very large portion of this cheaper kind of gaiters and shoes that you say have been introduced into the market during the last few years also less durable than the average of hand-made gaiters and shoes formerly?

A. The cheaper kinds are less durable, but the better class are as durable as when made by hand.

(And on his re-direct examination, as follows:)

Thirteenth Interrogatory.—Do you mean to be understood that the gaiter business, which the machine has enlarged, is only the business in cheap gaiters, or that it has enlarged the gaiter business generally?

A. Generally.

Fourteenth Interrogatory.—Has the machine had any effect in reducing the price of the better class of gaiters?

A. Yes, Sir, considerably.

Fifteenth Interrogatory.—Why are the cheaper kind of gaiters less durable, as you testified just now?

A. Probably partly from their being made on inferior sewing machines, or from being made with little care on good machines.

Sixteenth Interrogatory.—How much has the introduction of machines reduced the price of good, well-made, durable gaiters?

A. About one-third.

EDWIN B. STIMPSON.

City and County of New-York, ss.:—On this 30th day of July, 1860, before me personally came the above named Edwin B. Stimpson, and made oath that the foregoing deposition, by him subscribed, contains the whole truth and nothing but the truth. The said deposition is taken at the request of Elias Howe, Jr., to be used upon the hearing of the application of said Howe for an extension of his patent of September 10th, 1846, before the Commissioner of Patents of the United States, at his office, on the — day of —, 1860. The parties opposing were duly notified, as appears by the original notices hereto annexed, and attended by Samuel Blatchford, Esq.

Certified by me,

HORACE ANDREWS,

Comm'r of Deeds.

ALEXANDER DOUGLAS, being duly sworn, doth depose and say, in answer to interrogatories proposed to him by Causten Browne, Esq., of counsel for said Howe, as follows:

First Interrogatory.—What is your name, age, residence and occupation?

A. Alexander Douglas; age thirty-eight; residence, English Neighborhood, New-Jersey. I do business in New-York City, and am a skirt manufacturer.

Second Interrogatory.—Do you employ sewing machines in your manufacture, or have you in time past, and when and how many?

A. Yes, Sir. For the last five years, to the amount of two hundred and fifty machines.

Third Interrogatory.—Have you a general acquaintance

with the skirt manufacture of the City of New-York, its amount and character?

A. I think I have.

Fourth Interrogatory.—What proportion of that manufacture is done by sewing machines?

A. From one to two years ago there was three-quarters of it by sewing machines; now I don't think there is more than one-quarter. The reason is, that they are using steel hoops altogether, which are put on in such a manner that nothing but hand labor can accomplish it.

Fifth Interrogatory.—Knowing the extent of the skirt business, will you state generally what effect the use of sewing machines has had upon the value of that business?

A. Previous to this last year, when the fashion changed, as I have said, it would have been impossible for us to do one-quarter of the business we did without the machines.

Sixth Interrogatory.—Will you state, at a low estimate, what you believe to have been the value of the sewing machines to the hoop-skirt business in all the last five years, in the City of New-York?

A. It has reduced the cost of the skirt more than one-half—I mean previous to this last year.

The amount of the skirt business done in the City of New-York from January, 1858, to January, 1859, amounted, at the least, to three millions of dollars. I know one house that sold one million of dollars worth.

(And on his cross-examination by Samuel Blatchford, Esq., counsel for opponents, as follows:)

First Cross-Interrogatory.—Whose make were the two hundred and fifty machines you speak of having used?

A. All Wheeler & Wilson's.

Second Cross-Interrogatory.—How many do you use now?

A. About from seventy-five to a hundred.

ALEX. DOUGLAS.

City and County of New-York, ss.:—On this 30th day of July, 1860, before me personally came the above-named Alexander Douglas, and made oath that the foregoing deposition, by him subscribed, contains the whole truth and nothing but the truth.

The said deposition is taken at the request of Elias Howe, Jr., to be used upon the hearing of his application for an extension of his patent of September 10th, 1846, before the Commissioner of Patents of the United States, at his office, on the day of 1860.

The parties opposing such application were duly notified, as appears by the original notices hereto annexed, and attested by Samuel Blatchford, Esq.

Certified by me,

HORACE ANDREWS,

Comm'r of Deeds.

ANSON BURLINGAME, being duly sworn, doth depose and say, in answer to interrogatories proposed to him by Joel Giles, Esq., of counsel for Elias Howe, Jr., as follows, viz. :

First Interrogatory.—What is your name, age, residence and occupation?

A. Anson Burlingame; age 37; residence Cambridge, Massachusetts; am a lawyer.

Second Interrogatory.—State whether you know Elias Howe, Jr., formerly of Cambridge?

A. I do.

Third Interrogatory.—State whether at any time, and when, he requested you to redeem his sewing-machine patent and model in London from the party having it in pledge?

A. He did; sometime in August, 1849.

Fourth Interrogatory.—State whether you did redeem it, and how much you paid, as nearly as you can recollect; and the circumstances attending the recovery of the machine and patent, and what you did with them?

A. I went out to London in September, 1849, and proceeded, according to instructions, to find the gentleman with whom he said he had deposited the machine. I found him, after much difficulty, on what is called the Surrey side of London; a very poor quarter. I found this gentleman, who had the machine, who was a mechanic. I paid him his claim, something over one hundred dollars, and he delivered the machine and sent it by steamer to the United States, to Mr. Howe. The original letters patent were with the machine.

Fifth Interrogatory.—State whether the mechanic, having the machine in pledge was easily found by you, or lived in a quarter with poor people, not usually visited by others than the poor?

A. He was not easily found by me, and lived in one of the poorest quarters in London.

I was going to Europe at this time on business of my own, and I attended to this matter merely as a favor for Mr. Howe.

A. BURLINGAME.

City and County of New-York, ss.:—On this 30th day of July, 1860, before me personally appeared the above named Anson Burlingame, and made oath that the foregoing deposition, by him subscribed, contains the whole truth, and nothing but the truth.

The said deposition is taken at the request of Elias Howe, Jr., to be used upon the hearing of his application for an extension of his patent of September 10th, 1846, before the Commissioner of Patents of the United States, at his office, on the day of , 1860.

The parties opposing said application were duly notified, as appears by the original notices hereto annexed, and attended by Samuel Blatchford, Esq.

Certified by me,

HORACE ANDREWS,

Comm'r of Deeds.

ABRAHAM THORPE, being duly sworn, doth depose and say, in answer to interrogatories proposed to him by Joel Giles, Esq., of counsel for Elias Howe, Jr., as follows :

First Interrogatory.—What is your name, age, residence and occupation ?

A. Abraham Thorpe ; age, sixty-one ; residence, Southware, New-Hampshire ; am a tailor.

Second Interrogatory.—State whether you have used sewing machines, and if so, when, for the first time, and what kind, in your business ?

A. I have. About the year 1849, in September, I think. The Lerow & Blodgett machine.

Third Interrogatory.—State of whom you bought them, and about how many you had, and whether they had the baster-feed, so called ?

A. I bought them of O. C. Phelps, of Boston, Mass. They had the baster-feed. I bought eighteen in the whole.

Fourth Interrogatory.—State how the machines worked, whether satisfactorily or otherwise ?

A. They worked very well indeed ; very satisfactorily.

Fifth Interrogatory.—State whether any of the baster-feed machines are still in use within your knowledge ?

A. They are. My son is using them now.

Sixth Interrogatory.—State whether the baster-feed has any, and what advantage over other kinds of feed for perfection of seam ?

A. We think it has a great advantage ; my son and myself. They make a straighter seam.

Seventh Interrogatory.—State whether your workmen prefer the baster to other feeds, and if so, why ?

A. They prefer it because it holds the work in the position they wish to sew it.

Eighth Interrogatory.—State whether you have used other kinds of machines, and if so, how many and what kinds?

A. I have used Singer's. Five of them.

Ninth Interrogatory.—State how many workmen one machine is equal to in your business?

A. About six.

Tenth Interrogatory.—State whether you work for the trade or custom, or both?

A. Both.

(And being cross-examined by Samuel Blatchford, Esq., of counsel for opponents, as follows :)

First Cross-Interrogatory.—How many of those eighteen machines does your son use now?

A. One son uses one, and the other one has four.

Second Cross-Interrogatory.—What has become of the other thirteen?

A. I sold them.

Third Cross-Interrogatory.—When?

A. I couldn't tell the time. At different times.

Fourth Cross-Interrogatory.—Was it before or after you quit the tailoring business?

A. I have not gone out of the business yet.

Fifth Cross-Interrogatory.—Do you know if those thirteen machines are in use now?

A. I think not.

Sixth Cross-Interrogatory.—Are you using any sewing machines now in your business as a tailor?

A. I am.

Seventh Cross-Interrogatory.—Whose make, and how many?

A. I. M. Singer's. Five machines.

ABRAHAM THORPE.

City and County of New-York, ss.:—On this 30th day of July, 1860, before me personally appeared the above-named Abraham Thorpe and made oath that the foregoing deposition, by him subscribed, contains the whole truth and nothing but the truth.

The said deposition is taken at the request of Elias Howe, Jr., to be used upon the hearing of his application for an extension of his patent of September tenth, 1846, before the Commissioner of Patents of the United States, at his office, on the day of 1860.

The parties opposing were duly notified, as appears by the original notices hereto annexed, and attended by Samuel Blatchford, Esq. Certified by me,

HORACE ANDREWS,

Comm'r of Deeds.

ORSON C. PHELPS, being duly sworn, doth depose and say, in answer to interrogatories proposed to him by Joel Giles, Esq., of counsel for Elias Howe, Jr., as follows:

First Interrogatory.—What is your name, age, residence and occupation?

A. Orson C. Phelps; age, 45; residence, Malone, Franklin County, New-York; am a machinist and philosophical instrument maker.

Second Interrogatory.—State whether or not you ever made any sewing machines in Boston, and if so, what kind and how many?

A. I did make one hundred and twenty of the Lerow & Blodgett rotary machines.

Third Interrogatory.—State when you made them, how they worked, and what you did with them?

A. The machines worked well. I used from six to nine of them in tailoring. The rest I sold. I made them in 1849 and 1850.

Fourth Interrogatory.—State whether the machines had the baster-pin feed, so called?

A. They had.

Fifth Interrogatory.—State whether you know Elias Howe, Jr., formerly of Cambridge, and if so, whether he sued you at the time you were using those machines, for infringing his patent?

A. I knew him previous to his being connected with the sewing machines, also at the time he commenced the construction of the sewing machine, and I was the first man that he sued for infringement of his patent. He afterwards withdrew the suit from me and attacked another party.

Sixth Interrogatory.—State, so far as you know, Mr. Howe's pecuniary circumstances at the time that he sued you?

A. From his own representations I should judge that he was extremely poor, actually in destitute circumstances.

Seventh Interrogatory.—State whether you became acquainted with I. M. Singer in 1849 or 1850?

A. I became acquainted with Mr. Singer at first, in 1849, and became connected with him in business in 1850.

Eighth Interrogatory.—State whether you made sewing machines for him?

A. I made the first model, that was owned between himself, George B. Zieber and myself, and continued to make the machines from September until the last of December, 1850.

Ninth Interrogatory.—State whether or not Mr. Singer showed you the remnants of what he represented to have been the sewing machine made by one Walter Hunt, and if so, for what purpose he showed them to you?

A. The parts of the machine were brought to me by Mr.

Singer for the purpose of having a model made from them, or the old parts put together and made complete, which I could not do without inventing same parts to complete it. I advised him to return it to New-York, where Mr. Hunt could superintend the completion and arrangement of it, as he would understand it better than I did.

O. C. PHELPS.

City and County of New-York, ss.:—On this 30th day of July, 1860, before me personally came the above-named Orson C. Phelps, and made oath that the foregoing deposition, by him subscribed, contains the whole truth and nothing but the truth.

The said deposition is taken at the request of Elias Howe, Jr., to be used upon the hearing of his application for an extension of his patent of September , 1846, before the Commissioner of Patents of the United States, at his office, on the day of , 1860.

The parties opposing were duly notified, as appears by the original notices hereto annexed, and attended by Samuel Blatchford, Esq.

Certified by me,

HORACE ANDREWS,
Comm'r of Deeds.

OLIVER F. WINCHESTER, being duly sworn, doth depose and say, in answer to interrogatories proposed to him by Joel Giles, Esq., of counsel for Elias Howe, Jr., as follows :

First Interrogatory.—What is your name, age, residence and occupation?

A. Oliver F. Winchester; I am 49 years of age; reside in New-Haven, Connecticut; am a manufacturer of shirts.

Second Interrogatory.—State whether you use any, and if so, how many and what kind of sewing machines in your business?

A. I do; about four hundred of Wheeler & Wilson's machines.

Third Interrogatory.—State, as near as you can, the number of hands, whether male or female, employed in your factory?

A. About eight hundred females, and between forty and fifty males.

Fourth Interrogatory.—State the average number of shirts you make per week, and for what market?

A. We make about eight hundred dozen per week for the city trade of the United States, principally.

Fifth Interrogatory.—State whether the use of the sewing machine has improved the quality of your work, compared with it before the machines were used.

A. It has improved the quality in medium and lower priced shirts.

Sixth Interrogatory.—State what wages girls get per day or week, the lowest and the largest, or the average, as you may be able.

A. They work by the piece, and earn from three to six dollars per week, with occasional exceptions, where they earn more and sometimes a little less. The average is full four dollars per week.

Seventh Interrogatory.—State how many hand sewers one machine, with a girl to tend it, is equal to on an average?

A. About five. It varies from three to eight, according to the work it takes the place of.

Eighth Interrogatory.—State whether the girls make better wages with the machine than they did before the introduction of the machine?

A. They do, I think; their average is full twenty-five per cent. higher than it was before we commenced using the machine. This is true, not only of those that operate the machine, but of those that do the work that remains to be done by hand.

Ninth Interrogatory.—State, as near as you can, what portion of your whole work is done by machines, and what by hand.

A. I think from one-half to three-quarters of the whole is done by the machines.

Tenth Interrogatory.—State whether you find many women who sew with the machine who cannot sew well by hand or how otherwise?

A. We find very many such cases. I should think one-half of those running machines were unable to sew decently. Our recourse, when we get a bad sewer, is to set her to working on a machine. We have a custom department requiring good sewers, which we find it difficult to fill with competent persons, and the incompetent ones are transferred to machine work.

Eleventh Interrogatory.—State whether the introduction of the sewing machine has diminished the demand for female hand-sewers, so far as you know, or how otherwise?

A. No such result as that has come under my observation. So far as our own business is concerned, its increase demands a greater number of hand-sewers than before the introduction of sewing machines.

Twelfth Interrogatory.—State whether sewing machines have increased or reduced the price of female labor, so far as your observation extends?

A. They certainly have not reduced the price. The price of female labor has advanced full twenty-five per cent. since their introduction. I can't say that it is the cause of the advance, or the sole cause.

Thirteenth Interrogatory.—State whether or not you sell any machines, and if so, to whom, and what do the purchasers do with them?

A. I have sold several hundred machines within the past six years, principally for family use. In many cases, however,

to poor females, seamstresses who take in work, and some take their machines out to do work for families.

Fourteenth Interrogatory.—State whether medium shirts for the masses of the people have been increased in supply and quality by the use of the machines, so far as you know?

A. The demand, and consequently the supply, has largely increased, and the quality, as already stated, has been improved.

Fifteenth Interrogatory.—Judging from your business, is the sewing machine of great public value?

A. It is unquestionably, in my opinion, of very great value.

And on his cross-examination by Samuel Blatchford, Esq., of counsel for opponents, as follows:

First Cross-Interrogatory.—Of the eight hundred females employed by you in your establishment, how many are engaged in hand-sewing?

A. I should think about one hundred and fifty.

Second Cross-Interrogatory.—What were the machines which you speak of having sold—what make?

A. Wheeler & Wilson's.

O. F. WINCHESTER.

City and County of New-York, ss.:—On this 30th day of July, 1860, before me personally appeared the above-named Oliver F. Winchester, and made an oath that the foregoing deposition by him subscribed contains the whole truth and nothing but the truth. The said deposition is taken at the request of Elias Howe, Jr., to be used upon the hearing of his application for an extension of his patent of September 10, 1846, before the Commissioner of Patents, of the United States, at his office, on the 13th day of August, 1860. The parties opposing were duly notified, as appears by the original notices hereto annexed, and attended by Samuel Blatchford, Esq.

Certified by me,

HORACE ANDREWS,

Commissioner of Deeds.

The further examination of witnesses, on behalf of said Howe was then adjourned to July 31st, 1860, at ten o'clock, A. M.

Attest,

HORACE ANDREWS,

Comm'r of Deeds.

Tuesday, July 21st, 1860.

Mr. Keller present on behalf of the applicant, Elias Howe, Jr.; Mr. Blatchford on behalf of opponents.

HENRY B. RENWICK, being duly sworn, deposes and says, in answer to interrogatories proposed to him by Charles M. Keller, counsel for the applicant, Elias Howe, Jr., as follows :

First Interrogatory.—What is your name, age, residence, and occupation ?

A. Henry B. Renwick; 42 years of age; reside in the City of New-York, and am an inspector of steamers, and civil and mechanical engineer.

Second Interrogatory.—State your opportunities for becoming acquainted with the art of sewing seams by machinery, and the history of inventions in sewing machines ?

A. During the time that I was examiner in the patent office, although not having charge of the class of sewing machines, I was frequently called upon to consult in relation to sewing machine applications, with Messrs. Fitzgerald, Cooper & Smith, who had charge of such applications; and, after leaving the office, I was employed by Mr. Potter, of the firm of Grover, Baker & Co., prior to his agreeing to take a license from Mr. Elias Howe, Jr., to make certain examinations in relation to Mr. Howe's patent. I was afterwards employed by the defendants in suits brought by I. M. Singer & Co., under the Morey & Johnson patent; and since that time, I believe that I have been employed in almost every sewing machine suit that has been brought or tried in the Circuit

Courts of the United States, and have been obliged, in making examinations and preparations prior to such suits, to investigate carefully the art of sewing by machinery, as set forth in patents, American and foreign, and in publications, English and French, and as exhibited by old machines and the testimony of persons who had seen and invented those machines.

Third Interrogatory.—So far as your investigations have furnished you with information, by whose invention has the art of sewing seams by machinery been practically introduced to the public?

A. By Elias Howe, Jr., in whose patent of September 10th, 1846, are found described certain combinations, which, in some shape or other, exist in all, or very nearly all, of the practical sewing machines now in use.

Fourth Interrogatory.—Will you enumerate the essential parts and combinations of Howe's sewing machine, which are essential, in your judgment, to constitute a practical and efficient machine for sewing seams?

A. The parts are, first, a mechanism for making stitches, or an interlocking of thread, in which mechanism I include apparatus for making tension on the thread and drawing up the stitch.

Second. An apparatus consisting of two surfaces, between which the material to be sewed is contained, which hold that material against the thrust and retraction of the needle, and in such position that the stitches may be drawn tight.

Third. An automatic intermittently acting feeding apparatus, which causes the cloth to progress between the surfaces in the intervals between the successive punctures of the needle. These parts being all combined, so that each performs its action in the proper time to effect the sewing of a seam.

Fifth Interrogatory.—State what, in your opinion, are the characteristic features of each of the three mechanisms which you have stated in your last answer, constitutes in combination the Howe sewing machine?

A. The characteristic features of the stitching mechanism are an eye-pointed needle, acting from one side of the cloth, whose office is to pierce the goods and carry loops of thread through them. Second, an apparatus acting on the other side of the cloth, to confine the loops of thread thus passed through it. Third, tension apparatus acting upon the thread which forms the stitch; and fourth, a mechanism for pulling up each stitch so as to make a firm and tight seam.

The characteristics of the holding or resisting surfaces are, that they shall apply themselves closely, on each side of the material that is to be sewed, and practically surround the needle when it is inserted in the cloth.

The characteristics of the feed are, that it shall cause the cloth to progress by an equal distance, or practically so, between the holding surfaces, when the needle is withdrawn from the cloth, and before it enters it again.

Sixth Interrogatory.—Are you acquainted with what is described in an English patent said to have been granted to John Duncan on the 30th of May, 1804; and if yea, what relation does it bear to the art of sewing seams by machinery, and what is its mode of operation, and the purposes for which it is intended?

A. I am well acquainted with the description contained in that patent. I do not see that it has any relation to the art of sewing seams by machinery, except in so far as it describes an apparatus for loosely interlocking threads, which has been modified since the date of Howe's patent, and improved upon so as render it capable of making a tight stitch. But the machine, as described in the patent, could not make a single tight stitch, much less a whole seam. It is described and really is a machine for making ornamental tambouring on thin, slazy goods. In the machine the goods are described as being stretched on a frame similar to a quilting frame, which, by means of screws or pattern wheels, is caused to move, so that certain patterns may be embroidered by a series of crotchet hooks acting in combination with rotating instruments which present threads to the hooks of the crotchet hooks. There are no surfaces in this machine between which

the material to be acted upon is caused to progress, and no feed motion, except that which causes the frame in which the goods are stretched to move in the various directions required for tambouring ornamental patterns.

Seventh Interrogatory.—Do you find in the said Duncan machine any of the characteristic combinations which you have pointed out in your previous answers as constituting the essential features of the Howe sewing machine?

A. I do not.

Eighth Interrogatory.—Are you familiar with what is said to be described in Brewster's Encyclopedia, as improvements or additions to a machine like Duncan's?

A. I am familiar with an article in Brewster's Encyclopedia, under the head "Chainwork," in which is described, first, the same machine as is described in Duncan's patent; and second, certain suggestions for the improvement of that machine.

Ninth Interrogatory.—State in what volume, and on what pages of said Brewster's Encyclopedia, you find such description, and whether you find any description relating to that subject at page 395 of the tenth volume of said work?

A. The description I refer to is found in the 5th volume of the edition published in Philadelphia in 1832, commencing on the 588th page. The suggestions for improvement on the machine end on the 596th page, and there is no description of any machine for tambouring, embroidering or sewing, or relating to such subjects at page 395 of the 10th volume of the aforesaid work.

Tenth Interrogatory.—State the nature of the suggestions which you find in the said work, modifications or additions to what you find therein as similar to the Duncan machine?

A. The chief modifications are in the machinery for making the tambour stitches, and for moving the frame or tent in which the cloth is stretched. It is proposed in the article in Brewster to use an eye-pointed needle, and a loop-spreader instead of a crochet-hook and rotating instrument of the

patented Duncan machine ; and also to use spiral worms in lieu of the pattern wheels or screws of the Duncan machine. But there is no suggestion as to any alteration for converting the Duncan machine into a machine for sewing seams ; nor would the machine, if altered according to the suggestions, be capable of sewing seams.

Eleventh Interrogatory.—Do you find the said machine so proposed to be modified and of the characteristic combinations which you have pointed out in your previous answers, as constituting the essential features of the Howe sewing machine ?

A. I do not.

Twelfth Interrogatory.—Are you familiar with the machine of Thimonier, of July 17th, 1830 ; and if yea, state the purpose for which it is intended, and its mode of operation ?

A. I am familiar with the machine described in the patent of Thimonier, in the Brevets d'Invention, and have sewed with a working machine made in accordance with that description. The machine is one for making tambour stitches by means of a crotchet-hook, and what is called in the patent an "accrocheur." It has a surface upon which the cloth is supported, and a tube surrounding the crotchet-hook, which prevents the cloth from being lifted by the retraction of the hook. It has a tension upon the thread, and is capable of making a tolerably tight stitch, and is described as being applicable to sewing cloth ; but it has no feeding apparatus for causing the cloth to progress underneath the needle. The feed is caused by pulling the material along by hand ; in order to do this, the operation of the machine must be closely watched, so as to make the pull at the proper moment. This machine is, therefore, not an automatic machine for sewing seams, and does not contain the combination of stitching mechanism, feeding mechanism and holding surfaces which I have before stated, as described in Elias Howe, Jr.'s patent ; nor does the Thimonier machine contain the combination of a feeding mechanism, with

stationary surfaces between which the cloth is fed, which is also described in Howe's patent, and is essential to the operation of his machine.

Thirteenth Interrogatory.—In your opinion, is the Thimonier machine suitable for sewing practically efficient seams in cloth or other material?

A. I do not think it is. Nor would it be even if it were provided with an automatic feed, as there are certain difficulties in its construction which make it uncertain in the operation of making a stitch, although I have seen it in perfect adjustment, and just after being adjusted, make a succession of stitches of several inches in length without missing one.

Fourteenth Interrogatory.—What is the quality and character of the seam formed by the Thimonier machine, as compared with the seam formed in the Howe machine, and the machines of I. M. Singer & Co., Wheeler & Wilson, Grover & Baker, and others in general use, in the business of sewing?

A. The seam is loose, does not fasten the pieces of cloth closely or firmly together, and the length of the stitches is irregular. It cannot be compared at all with a seam made by the Howe machine, or any of the modern sewing machines, as such seams are so much better than Thimonier's, that it is almost impossible to draw the comparison. The seam sewn by the Thimonier machine is, moreover, easily raveled out.

Fifteenth Interrogatory.—Are you familiar with the patent granted to John J. Greenough, dated February 21st, 1842, and re-issued February 12th, 1846, and with the original application of said patents; and if yea, state what relation such machine bears to the art of sewing by machinery?

A. I have examined both the patent and the application referred to in the question, at various times, and believe that I understand the machine described therein. I do not think a practical machine could be built from the description of

that patent. The machine, described, both in the patent and in the application, sews a seam by passing the end of the thread through the leather or other article to be sewed, and thus involves the use of short lengths of thread; differing from Howe's and all modern sewing machines, which pass loops only of thread through the cloth, and are thus enabled to sew with long lengths of thread, delivered as wanted from a spool or bobbin. The needle in Greenough's machine is pointed at both ends, and has an eye in the middle, thus differing from all modern sewing machines, and is passed entirely through the cloth, being taken hold of by its moving mechanism alternately, on opposite sides of the cloth. A knot in the thread must, moreover, be passed through the cloth at each stitch, except when a double thread is used; and in both these respects it differs from Howe's and other sewing machines now in use. In Greenough's machine, as described in his patent, the article to be sewed is to be held in a clamp, and there are no surfaces stationary with reference to the progression of the cloth and practically surrounding the needle, as in the Howe machine. In Greenough's application, certain rollers are described as capable of use in place of the clamps, but the description is not consistent with itself; and even when it is attempted to reconcile the discrepancies, there is no sufficient description to enable a mechanic to understand how the rollers are to be located; and at any rate, there is no description which recites that those rollers are to be used in combination with holding surfaces, so that the former may feed the article to be sewed between the latter; and I do not find in this machine the combinations which I have before stated as existing in Howe's machine, and essential to its operation, and by which the art of sewing seams automatically by machinery was introduced.

Sixteenth Interrogatory.—Are you acquainted with the English patent granted to Newton & Archibald, dated May 4th, 1841; and if yea, state what relation such machine bears to the art of sewing by machinery?

A. I have examined the patent referred to in the question a great many times, and find described therein a machine for

producing ornamental tambour work on gloves or material to be made into gloves. I do not find in the patent any suggestion that it is capable of sewing seams for uniting pieces of cloth together, or any apparatus that would produce that effect practically. The mechanism for making the tambour stitches described is very similar to that suggested in Brewster's Encyclopedia, before referred to, and the glove or article to be ornamented is clamped fast in a small frame, while the ornamenting is done by several needles acting in connection with hooks. The frame in which the glove is stretched is only long enough to contain it, and is closed at both ends; and there are no surfaces between which the glove is fed. The chief dependence for supporting the leather against the puncture of the needle appears to be the tight stretching of the material in the frame; but in one modification described in the patent, a bent pressing wire is described, which will bear on the material of the glove between each pair of needles, and prevent the material from being forced up by the needles. In the machine there are no surfaces practically surrounding the needle between which the cloth is fed, and there is no clamp capable of holding a length of cloth so that a seam might be sewed. In my opinion the machine is, as it is described, one which is capable of making short lengths of ornamental stitching, but it has not the combination that I have before stated, as existing in Howe's machine, and as essential to its operation, and without which, so far as I know, no practical sewing machine has been built.

Seventeenth Interrogatory.—Are you acquainted with the English patent granted to Fisher & Gibbons, as enrolled on the 7th day of June, 1845; and if yea, state what relation that bears to the art of sewing by machinery?

A. I am well acquainted with the description in that patent, and the inventors set forth that it is machinery for working ornamental figures, or designs on lace or other fabrics. Although I have repeatedly examined this patent, I have never been able to determine exactly how the machine was to be constructed, but am able to understand that the

material to be ornamented is to be supported by two rollers, and rolled off of one on to the other. In one form of the machine described, the ornamentation is to be effected by means of a peculiarly shaped eye-pointed needle, acting in connection with a shuttle, and each governing thread supplied from a bobbin. The needle is very much curved, so as to permit of the passage of the shuttle between the thread and the needle, and is suitable for perforating lace and very thin goods only. The needle enters from the lower side of the cloth, and carries a loop of thread through it which is detained by a loop of shuttle thread, in so far resembling the stitching mechanism in Howe's machine; but there are described in the patent no surfaces in close contact with the cloth between which the cloth is fed, and which support it against the thrust and retraction of the needle, and in such position that successive stitches can be drawn tight so as to form a seam. I do not find in this machine, therefore, the holding surfaces of the Howe machine, nor the combinations before stated as existing therein and essential to its operation; nor do I find described in the Fisher & Gibbons patent any feed motion, which could operate to feed cloth practically so that seams might be sewed thereon; nor a tension apparatus on the shuttle thread by which the stitch might be tightened, if there were surfaces in the machine to hold the cloth in proper position for such tightening. I do not think that this machine was ever intended to sew seams; or, if one could be built from the description, that it would be capable of sewing seams in cloth or other material.

Eighteenth Interrogatory.—Could a shuttle, the points of which are formed as represented in Fisher & Gibbons patent, be practically used for interlacing the thread in connection with a straight eye-pointed needle, or one in the segment of a curve, so as to be moved by an arm vibrating on an axis, as in the Howe machine, or any other modern sewing machine with a vibrating arm?

A. I do not think it could; at any rate, in all the shuttle sewing machines which I have seen, and which were capable of operation, the point of the shuttle was entirely on one side

of it, so that it might pass in close proximity to the body of the needle, and enter the loop of needle-thread without spitting or fraying it.

Nineteenth Interrogatory.—Have you examined the specification and drawing of the patent of Elias Howe, Jr., to which you have before referred ; and if yea, state whether, in your opinion, a practical successful sewing machine could be constructed therefrom ?

A. I have no doubt that one could be constructed therefrom by a skillful mechanic, and without the exercise of invention.

Twentieth Interrogatory.—Is there, or not, described in the said patent and drawings a means for producing tension on the shuttle-thread ; and if yea, state whether such means is practical or imperfect ?

A. There are two means shown in the patent for making tension on the shuttle-thread—one by a spring pressure upon the bobbin in the shuttle, and the other by means of what is called in the patent a clipping-piece. Either of them, or both in combination, are practical and efficient, and the clipping-piece is probably the most perfect tension on the shuttle-thread that has yet been devised, as its action is not effected by the varying diameter of the bobbin.

Twenty-first Interrogatory.—In what respect or respects do the sewing machines in general use correspond with the Howe machine, limiting your answer to what are essential and novel features in the Howe machine ?

A. I would first state, in answer to that question, that there is a small number of machines used in cotton-factories which sew a loose crochet-stitch, purposely sewed so loose that it can be raveled out easily, which do not embody the essential and novel features of Howe's machine. These machines do not make use of Howe's surfaces, and are only employed, so far as I know, for connecting the ends of piece goods, which are afterwards to be dyed or printed, the seam being raveled out after the dyeing or printing is completed.

Of these machines I have never seen more than three, and I am not certain that I have seen so many. All the other sewing machines which I know of now in use or on sale embody the following characteristics of Howe's invention, and which, so far as I am able to discover, were new with Howe : They all have, in combination, an eye-pointed needle with two surfaces, resisting the thrust and retraction of the needle. They all have an intermittent feeding apparatus, combined with two surfaces, and so arranged as to feed the cloth between them ; and they all have a combination of a stitching mechanism with holding surfaces and with a feeding apparatus. All the shuttle machines that I know of have shuttles substantially like Howe's, with a point on one side ; have shuttles with tensions on the shuttle-thread, in combination with an eye-pointed reciprocating needle, as represented in Howe's machine ; and have also an apparatus for controlling the slack of the needle-thread, which is substantially identical with Howe's thread-controlling apparatus, called in the patent a "lifting pin." In addition to this, many of the shuttle machines have a tension on the shuttle-thread between the bobbin and the seam, substantially identical with the tension described in Howe's patent.

Twenty-second Interrogatory.—Do you find in any of the machines, or patents, or descriptions, to which you have been referred, as of prior date to Howe's patent, any of the features which you have named in your last answer as being common to the Howe machine, and to the machines in general use.

A. I do not.

Twenty-third Interrogatory.—Is there any difference, and if so what, between the Grover & Baker stitch, which lays one thread all on the surface of the goods, and an interlocked stitch which might be formed with a needle and shuttle, with a tension so imperfect as to lay all the shuttle-thread on the surface of the goods ?

A. There is a practical difference between them when formed, in the fact, that the shuttle-stitch, formed as described in the

question, can be raveled out accidentally, or by pulling designedly on either end of the shuttle-thread, without touching the needle-thread; whereas, on the contrary, the Grover & Baker stitch is as firm and strong, or stronger than a properly made shuttle-stitch, and cannot be raveled out accidentally. It moreover is elastic, and a shuttle-stitch, formed as in the question, has no elasticity; and further, the Grover & Baker stitch can be raveled out designedly only by pulling properly on the proper ends of both the needle and shuttle-threads.

Twenty-fourth Interrogatory.—Have you had any opportunity, and if so, what, of becoming acquainted with the manufactories of Wheeler & Wilson, Grover & Baker and I. M. Singer & Co.; if yea, state what are their facilities for supplying the public with sewing machines, and what is the quality of workmanship and material employed by them in the manufacture of machines, and what is the quality of machines made by them?

A. I have repeatedly visited and examined the manufactories of the Grover & Baker and Wheeler & Wilson sewing machine companies; and have been once taken through, and had opportunity to examine carefully, the manufactory of I. M. Singer & Co.; and have repeatedly and carefully examined the machines made at all three of those factories. All three of them are of great extent, employ numerous workmen, and are fitted with the most approved tools for making the various parts of sewing machines, many of which, as I know, in the Wheeler & Wilson and Grover & Baker factories, have been specially contrived and built to give form to certain parts of the sewing machines. In all of these factories the subdivision of labor is carried out to a great extent, a greater extent, in fact, than any factories I know of except the government factory at Springfield. In all of them the forms of various parts of the sewing machines are accurately determined by the machinery employed in building them; and, so far as I know, the materials employed are of the best character, although I have made no special examination on that head. I do know that all of them have facilities for

making machines at the lowest price and of the best character, and that the machines, as made, are accurate in their workmanship, run smoothly and with the expenditure of little power; and are of much better workmanship than other machines in the market, excepting perhaps those of Ladd & Webster, Lester, and Finkle & Lyon. I have no positive knowledge as to the number of machines that they can produce, but should judge that either factory could produce many more machines than are now sold by the parties to which they belong.

Twenty-fifth Interrogatory.—How many varieties of sewing machines have you seen on sale or in use, which involve the novel characteristic features of the Howe machine?

A. I will name some of them; but as my examination of these machines has extended over a period of several years, and has been directed to many different varieties of machines, it will be impossible for me to name them all. Among those I remember are machines made by Lester, of Brooklyn, by Finkle & Lyon, by Ladd, Webster & Co., by I. M. Singer & Co., by Sloat, of Philadelphia; by Wheeler & Wilson, by Grover & Baker, by Planer & Anger, the Boudoir machine, the Williams machine, of Boston, the Bartholf machine, the A. B. Howe machine, and at least twenty other varieties that I cannot remember the names of.

Twenty-sixth Interrogatory.—Look at the old pieces marked Exhibit A., R. E. Stillwell, and state whether they would suggest to the mind of a machinist the principle, structure and organization of a sewing machine?

A. If I had never seen a machine for sewing or embroidering, I should not have been able to understand what the fragments exhibited to me were intended for; but on examining them, after having seen and examined many sewing machines, I should be able to say that they were parts of an experimental and probably uncompleted sewing machine. I cannot discover, from the fragments, how the parts were to be moved, or organized into a machine, or how

the machine was to operate ; and there are many pieces which I cannot conceive the use of. All that I can identify as being characteristic of a sewing machine are a needle and needle arm, a clamp to hold the goods, a shuttle race, and something which may have been a shuttle. How it was intended to operate these parts in combination with each other, I cannot discover, when guided by the knowledge of such machines I now possess.

HENRY B. RENWICK.

Adjourned to a quarter past six same day.

Mr. Keller and Mr. Blatchford present.

Mr. Blatchford waives cross-examination of the witness.

Adjourned to ten, A. M., the 1st August, 1860.

STEPHEN H. TYNG, being duly sworn, doth depose and say, in answer to interrogatories proposed to him by Joel Giles, Esq., of counsel, for Elias Howe, Jr., as follows :

First Interrogatory.—What is your name, age, occupation and residence ?

A. Stephen H. Tyng ; age is 60 ; minister of the gospel ; residence, 83 East Sixteenth-street.

Second Interrogatory.—State whether your professional duty brings you acquainted with the poor, and especially poor women, seamstresses and poor families ?

A. My habits of ministry bring me into connection with the poor, and much observation of the needs of the poor seamstresses and poor needlewomen.

Third Interrogatory.—State your observation of the use of the sewing machine by poor needlewomen, and whether or not you are applied to by such women to aid them in obtaining sewing machines, and what your practice is in regard to such applications ?

A. My observation of the difficulties of poor women in supporting themselves with the needle, and the impossibility of their obtaining a support for their families by any needle work by the hand, as a general rule, led me to the attempt to supply them with sewing machines. I have been in the habit of purchasing machines for them, giving them, lending them, selling them upon graduated payments, and have found very great success in thus aiding them to support themselves.

Fourth Interrogatory.—State what kind of machines, or whose make, you usually obtain for the purpose you have stated?

A. I have purchased Grover & Bakers', Wheeler & Wilson's, and Singer's, as they have been severally preferred by the women themselves.

Fifth Interrogatory.—State, as near as you can, how many or the average number within any given time you procure for the poor?

A. I have been in the habit of purchasing them, sometimes myself, sometimes through other friends, and sometimes with direct orders for the women; but it is out of my power to state the number. I am very frequently called upon now by women for this purpose. I have had an application for three this morning. I do not remember any application to have been refused in some one of the shapes referred to.

Sixth Interrogatory.—State whether the companies, whose machines have been supplied as stated by you, have co-operated with you in supplying the poor with their machines, by affording good machines at their lowest prices, or how otherwise?

A. The companies have always made a liberal deduction on the price of the machines so purchased by me, and I have had no complaint from the women of the character or operation of the machines themselves.

Seventh Interrogatory.—State whether the condition of the sewing women thus supplied with the machines has been improved, according to your observation, or how otherwise?

A. I have never had any complaint from women who have had the machines from me of their inability to support themselves by them. My own observation would lead me to conclude that their condition has been very much improved by them.

Eighth Interrogatory.—State, as far as you can, whether sewing women consider sewing machines beneficial to themselves or their class, or how otherwise?

A. My impression is, that intelligent sewing women are now generally satisfied of the importance and value of these machines.

STEPHEN H. TYNG.

City and County of New-York, ss.:—On this 31st day of July, 1860, before me personally came the above-named Stephen H. Tyng, and made oath that the foregoing deposition, by him subscribed, contains the whole truth and nothing but the truth.

The said deposition is taken at the request of Elias Howe, Jr., to be used upon the hearing of his application for an extension of his patent of September 10th, 1846, before the Commissioner of Patents of the United States, at his office, on the 13th day of August, 1860.

The parties opposing were duly notified, as appears by the original notices hereto annexed, and attended by Samuel Blatchford, Esq.

Certified by me,

HORACE ANDREWS,

Comm'r of Deeds.

HENRY HASLER, being duly sworn, doth depose and say, in answer to interrogatories proposed to him by Joel Giles, Esq., of counsel for said Howe, Jr., as follows:

First Interrogatory.—What is your name, age, residence and occupation?

A. Henry Hasler ; age 25 ; reside at 159 Elizabeth-street ; my occupation is that of a carriage trimmer.

Second Interrogatory.—State whether you use in your business any sewing machines ; and if so, what kind, and how many and for what purpose ?

A. We have used Mr. Howe's machine for the last four years ; Mr. A. B. Howe's ; only one machine, for stitching on carriage work ; that is, leather work for carriages.

Third Interrogatory.—State whether or not your machine has worked satisfactorily ?

A. It has worked very satisfactorily, because we used to have ten or twelve hands, instead of which we now have three ; and it gives a better finish to the carriage work than any hand work could ever do.

Fourth Interrogatory.—State for what establishment you work ?

A. For Henry Brewster & Co.

Fifth Interrogatory.—State whether you can do with one machine and three hands as much work as you formerly did with ten or twelve hand sewers ?

A. Yes.

HENRY HASLER.

City and County of New York, ss. :—On this 30th day of July, 1860, before me personally came the above-named Henry Hasler, and made oath that the foregoing deposition, by him subscribed, contains the whole truth and nothing but the truth.

The said deposition is taken at the request of Elias Howe, Jr., to be used upon the hearing of his application for an extension of his patent of September 10th, 1846, before the Commissioner of Patents of the United States, at his office, on the 13th day of August, 1860.

The parties opposing were duly notified, as appears by the

original notices hereto annexed, and attended by Samuel Blatchford, Esq.

Certified by me,

HORACE ANDREWS,

Commissioner of Deeds.

ORLANDO B. POTTER, being duly sworn, doth depose and say, in answer to interrogatories proposed to him by Joel Giles, Esq. of counsel for Elias Howe, Jr., as follows :

First Interrogatory.—What is your name, age, residence and occupation?

A. Orlando B. Potter; age, 37 years last March; residence, 32 Great Jones-street, New-York City, and by profession a lawyer, and am president and acting manager of the Grover & Baker Sewing Machine Company.

Second Interrogatory.—State how long you have been engaged in the sewing machine business, and what opportunities you have had for understanding the different leading inventions in sewing machines?

A. I became a co-partner in the firm of Grover, Baker & Co., February 11th, 1852, as a member of that company, and in my present office I have been engaged in the sewing machine business, actively and constantly, ever since. I have, from the commencement, endeavored to obtain as thorough and accurate a knowledge of all the important inventions in sewing machines, especially the earlier ones, down to this time. To aid me, I have had recourse to the best experts I could find in this country, and to those whom I believed to be most thoroughly acquainted with the art in England and France. I believe I have a pretty thorough understanding of the sewing machine art, as at this time developed, in practice in this country and in Europe.

Third Interrogatory.—State whether or not you are acquainted with the sewing machine invention of Elias Howe, Jr., patented September 10th, 1846, and if so, how well, and what led you to become so acquainted?

A. I think I am acquainted with Mr. Howe's invention, and well acquainted. I was led, in the first place, to become acquainted with it in the year 1852, in consequence of my connection with the sewing machine business. I then investigated it, to ascertain its extent and proper scope, and the legitimate extent and scope of his patent upon it, in order to form a proper judgment as to whether or not the Grover & Baker machine used that invention, or infringed Mr. Howe's patent. I employed in that investigation the best experts I could find, and the best legal assistance. I understood, soon after my connection with Grover & Baker, that Mr. Howe claimed that their machine embodied and used the leading elements of his invention; and this investigation was the more thorough and careful, as it was preliminary to the question of whether Grover, Baker & Co. should subject themselves and their machine to paying a license to Mr. Howe.

Fourth Interrogatory.—In what relation do you consider Mr. Howe's invention to stand to the other sewing machine inventions now in use, and why?

Counsel for opponents objects to this question, on the following grounds: 1st. Because the witness is not a mechanical expert. 2d. Because the answer to the question must necessarily be, from the foundation laid for it, a matter of hearsay. 3d. Because the opinions of any witness, on the point inquired of in question, is incompetent, unless the witness be a mechanical expert. 4th. Because the answer to the question must be a substitution of the opinion of the witness for the judgment which the Commissioner of Patents is required to form from mechanical facts.

Question insisted on, because the witness has shown himself competent to form the opinion called for, and to give his reasons therefor.

A. I ought perhaps to state, that during the last eight years and more, I have devoted much time to the examination of different inventions, sewing machines, models and patents, in and for sewing machines, and I think I have examined the specifications and machines which are the leading ones in this country and in Europe, and have myself drawn specifications and made applications for patents in many instances, and examined and directed a considerable number of others.

After my first thorough examination of the subject, I formed the deliberate judgment that Mr. Howe's machine was the first sewing machine proper which was ever constructed and made a part of the art, and, as such, was the foundation of the sewing machine art as it then existed, and my experience and study, and knowledge of the business, from that time to the present, has fully confirmed that opinion. I believe Mr. Howe's invention to have been both the root and the trunk upon which all the subsequent art has been engrafted, and from which it has grown.

Mr. Howe's invention was the first complete automatic machine capable of sewing in the manner now generally, and, I believe, universally used in sewing machines. It embodied, for the first time in a single machine, combined and co-operating, the necessary mechanism for properly holding and feeding the cloth through the machine, stitch by stitch, in such manner that the stitches should be regularly spaced and set, and the necessary mechanism for setting or making the stitches with proper tensions, and mechanism for obtaining them upon the thread, so as to make a seam of suitable firmness. I believe this machine, as a whole, to have been new with Mr. Howe, and that many of its separate elements were also entirely new.

(Counsel for the opponents objects to each and every part of the foregoing answer, for the same reasons specified as grounds of objections to the question which the witness has answered; and he further objects to so much of said answer as states the witnesses belief as to the novelty of the invention of Mr. Howe, as being incompetent, and as a statement of the result of facts, and not of any competent facts.)

Fifth Interrogatory.—State whether you have found the substance of Mr. Howe's invention embodied in sewing machines in use at the present time, and, if so, how generally?

(Counsel for opponents objects to this question for the same reasons stated in objecting to the fourth question.)

A. I have found it, either the substance or a considerable portion of its substance so embodied. I do not know that I have ever seen a two-threaded machine of any of the great variety now generally in use, which did not embody the substance of Mr. Howe's machines; and I have seen no single-threaded machine which did not contain a substantial part of Mr. Howe's invention.

Sixth Interrogatory.—State your estimate of the number of machines in use in this country, and whether they are in the same form, or under many varieties of form and adaptation of Mr. Howe's patent?

A. I am satisfied that considerably over two hundred thousand sewing machines have been constructed and put in use since the introduction of Mr. Howe's machine in this country. My opinion is, that a considerable portion of the earlier machines, and of the cheap machines of later construction, have passed out of use; but I am satisfied that at a moderate calculation one hundred and twenty-five thousand sewing machines are now in use in this country—I mean of two-threaded machines, embodying the substance of Mr. Howe's invention.

These machines are under a great variety of form and arrangement. They are not generally, nor to any considerable extent, under the same form shown in Mr. Howe's patent, nor do I know of any sewing machine which has ever been constructed and generally manufactured, and used under the same form in which it was originally patented or first made.

Seventh Interrogatory.—State what has caused the variety of form in sewing machines now in use, and whether such

form be necessary or not to supply the sewing machine want, and why?

A. This variety of form and arrangement, and to some extent of construction, is absolutely necessary, to meet the demands which are made upon the sewing machines by society. It would take a great while to enumerate any thing like the whole variety of uses to which sewing machines are applied and have been adapted during the last ten years. They are required to sew thick leather in almost every form, and the most delicate woven fabric, to sewing sails and to sewing paper, to sewing garments in a tubular form. They make hose with them to drain the mines of California, and stitch the most delicate laces.

The demands of society for these varieties, and the fact that Mr. Howe has allowed his machine, under a moderate tariff to himself, to be used, engrafted upon, and adapted to these wants, are, in my judgment, the prolific causes of the great variety of the adaptations and arrangements of the sewing machines now found in use.

Eighth Interrogatory.—Have you or not been observant of Mr. Howe's course, relative to inventions in sewing machines, and if so, has he encouraged or discouraged them?

A. I have been so observant. I have had almost daily intercourse with Mr. Howe, during the last seven years. I know that Mr. Howe has done all that he could to promote and encourage the invention and introduction, and use of improvements in sewing machines, by all parties wishing to use them honestly and without trespassing upon the rights he knew to belong to others.

Ninth Interrogatory.—What has been the effect of this course of Mr. Howe, in regard to himself and the public?

A. The effect of this liberal policy on the part of Mr. Howe, has been to stimulate invention in sewing machines, to an extent that it would be difficult for one not actually in the business to appreciate, and to promote the introduction and use of the sewing machine, and secure its benefits to the public to the largest practicable extent. In this way, differ-

ent parties, inventors, seized hold of Mr. Howe's invention, and made the adaptations and improvements in it which have been made, and introduced it almost simultaneously into the different departments of industry existing in the community.

I am satisfied, that the benefits to the public, resulting from Mr. Howe's policy in the arrangement of his patent, would be difficult to over-estimate. The result to himself shown in his balance, stated in his account in this case, which I have seen.

Tenth Interrogatory.—State, so far as you know, what has been Mr. Howe's course in regard to licensing others under his patent?

A. From the time I first made Mr. Howe's acquaintance, and that of his counsel, Mr. Giles, it has been his declared and well understood purpose and policy to license his machine to all honest and responsible parties who were willing to respect and not infringe upon the rights and patents of his prior licensees. I have never known an applicant for a license to be denied unless it was for the reason that such applicant was infringing upon the rights of Mr. Howe's then existing licensees, and purposed to persist in such infringement, nor do I believe there has ever been one so denied.

Eleventh Interrogatory.—State whether Mr. Howe has placed himself under obligations to your company or his other licensees, not to license those who persisted in infringing your subsequent patents, and what has been the effect of such covenant, if any, upon the sewing machine business?

A. Soon after the trial of Mr. Howe's patent by a jury, which took place, I think, in 1852, Mr. Howe requested and demanded of our company and of Wheeler, Wilson & Co., that we and they should submit to and pay a license to his patent. After the investigation I have mentioned our company agreed to do so upon certain conditions, and among the most important was the condition that Mr. Howe should not license under his patent infringements upon the patents of our company. This condition was submitted to Mr. Howe's

counsel, and discussed by Mr. Howe, Mr. Bliss, Sr., then co-owner, Mr. Giles and myself, and also by Mr. Wheeler, on the part of Wheeler, Wilson & Co. It was recommended by Mr. Giles as just and proper, and when we took our license it was engrafted therein as one of its provisions. It was understood and I think covenanted that Mr. Howe's other licensees who had made or owned other important inventions, should be protected in the same way by a similar covenant.

I know that the effect of this covenant upon our company was greatly to increase our confidence in the safety and stability of our business, and to induce us to invest both our means and our efforts in our business to a much greater extent, and far greater assurance of ultimate reward and return, than we could otherwise have had. I think it had the same effect upon the efforts and the business of Mr. Howe's other licensees.

Twelfth Interrogatory.—State, if you know, whether Mr. Howe's invention has been patented in England, and if so, to whom, and how said patent is managed by its owner there, and how his invention stands in relation to the art in England?

A. Mr. Howe's invention has been patented in England to William Thomas. It has been managed very differently there from the way it is managed here. Mr. Thomas has undertaken to manufacture the machines himself, and to enforce, by virtue of said patent, a vigorous, and, until recently, an exclusive monopoly in the manufacture and sale of sewing machines in England. He has recently allowed the Grover & Baker machines to be introduced and sold in England under a very high royalty or license fee to himself.

Our company now export and sell their machines in England, and have since they were allowed so to do, and pay Mr. Thomas ten per cent. of all their machines sold there. This is five times as much as we pay Mr. Howe for the privilege of making the same machines in this country for exportation. The shuttle machines and Wheeler & Wilson machines are still vigorously excluded by him, and the manufacture of machines making the lock-stitch is monopolized by Mr. Thomas there. The result of this exclusive policy on the part of Mr.

Thomas has been to prevent sewing machines going generally into use in England, as they have done here. Mr. Howe's machine occupies the same position in relation to the art of sewing by machinery in England as in this country, and Mr. Thomas demands and enforces the collection of the royalty, so far as I know, upon every sewing machine sold or used in England. Our company had a long litigation with Mr. Thomas in England, in which the whole art of sewing by machinery was thoroughly investigated. As the result of it, Mr. Thomas obtained a verdict and a final decree against the Grover & Baker machines in England, and I doubt if there is one of our machines there on which he has not enforced the royalty. In many cases he collected £10 per machine from manufacturers, who had many of them in use.

Thirteenth Interrogatory.—State, if you know, whether Mr. Thomas has applied for an extension in England of his patent for Mr. Howe's invention.

A. He has so applied, and is now pressing his claims for an extension of that patent.

Fourteenth Interrogatory.—State whether or not Mr. Howe's licensees have supplied the demand for sewing machines in the United States, and what means, if any, they have used to that end?

A. They have not only supplied the demand, but have labored with a persistence and assiduity that I have never known equalled in any business to create the demand in the community by instructing the people in advance in the use of the sewing machines, and by advertising them most extensively throughout the country, by establishing agencies for the sale of them, and for instructing people in the use of them in almost every town and village of any considerable importance, and supplying such agencies with stocks of machines, in order that the demand may be supplied as soon as it arises, without loss of time for transportation. I do not think the advertising bills of our company have been less than twenty-five thousand dollars per year for the last five

years, and I think our bills have been less than either Wheeler & Wilson's or Singer & Co.'s.

These agencies employ sub-agencies, and, in many cases, pedlars, who itinerate from house to house, instructing people in the use of the sewing machine. In many parts of the country the sewing machine business has not yet begun to yield a profit to the manufacturers. It is the common experience of our company to introduce our machines in distant portions of the country, and carry on the business at a loss for years before a profit is realized; and this, I think, is equally the case with the other companies.

Fifteenth Interrogatory.—State, so far as you can, the outlays that have been made by your company and the other licensees of Mr. Howe, in tools and machinery, for building your several machines and supplying them, whole or in parts, if so desired, to the public.

A. Our company have invented and made, by engineers and mechanics employed for that purpose, a great amount and variety of tools and machinery for building each and every piece or part of our machine, in such manner that the same part from any one machine shall be a duplicate of each and every other corresponding part in every one of our machines of the same class. In this way only can the parts be so made that they will fit and work in their proper places in any of their class of machines, so that if a machine in any part of the country becomes worn out or broken in any part, this part can be sent to the user of such machine, who, either alone or by the aid of any ordinary mechanic, can thus put the part in its place, and make the machine again serviceable and useful. Our company have expended in this way and to this end a large portion of their income for several years. In my opinion, altogether not less than one hundred thousand dollars. Wheeler & Wilson Manufacturing Company, I know do the same. I am not so well advised as to the machinery of I. M. Singer & Co.; I have not been through their manufactory. I know, however, that they have expended very large amounts to increase their facilities for manufacturing, and I think larger than our company. I do not include in this an-

swer the ordinary machinery, such as lathes, &c., which may be purchased ready-made, and of which we all of us have very large amounts.

Sixteenth Interrogatory.—State, as near as you can, the estimated value of the whole property of your company, and Mr. Howe's other licensees, invested in the manufacture and sale of sewing machines to supply the public?

A. I think, at its cost, it would not be less than two millions of dollars. I should be disappointed if it was not considerably more. Its estimated value is a more difficult thing to determine. Apart from the purposes for which it has been invested, if it were to be sold, it would bring but a small portion of its cost. It is so much necessarily invested for carrying on the business, and in the necessary means for carrying it on. Its real value will depend upon the permanence of the business, and to a great extent to the protection which the patents granted by the government shall afford to the business. Different individuals would differ in that estimate.

Seventeenth Interrogatory.—What effect would the expiration of Mr. Howe's patent, at the present time, have upon the capital and labor invested in the manufacture and sale of sewing machines by his licensees?

A. I think its effect could not fail to be disastrous, or, to say the least, very injurious. In my opinion hardly more than one-half of the country has yet begun to yield a profit to Mr. Howe's licensees in return for their long effort to create a demand for and instruct the people in the use of sewing machines. The result of the expiration of Mr. Howe's patent would, I think, be to embolden and encourage the infringements upon the other sewing-machine patents, and to a great extent to render them of little value. I have no doubt it would enable illegitimate manufacturers to reap the fruits of the labors of Mr. Howe's licensees.

Eighteenth Interrogatory.—State what you know of the nature and extent of infringements upon Mr. Howe's patent?

A. Mr. Howe's patent, ever since my connection with the

sewing-machine business, has been infringed to a large extent, although the infringement in the early years of the business, and before it became profitable, was much less than it has been recently. The nature of the infringement is peculiar ; owing to the peculiar nature of the business, to the universality of the demand and to the immense facility for infringement which results from these causes. Any mechanic of ordinary skill, who can get a sewing machine to look at and copy from, can, in a garret and with a few tools, make a machine which will sew, with such greater or less departures from the original as his skill will enable him to make. These men, so manufacturing covertly during the last two years, I am satisfied would number hundreds. I hardly know a village in the northern portion of the country where this species of manufacture has not been carried on for the last two years to a greater or less extent, and in the aggregate this species of manufacture, I think, has more than equalled the whole legitimate manufacture of the country. This infringement is peculiar in another respect. It is one against which the patent laws of the country, as at present administered, afford no adequate and timely protection. The infringers are, in most cases, wholly irresponsible, and they pass their business and their shops from hand to hand with a facility and celerity that entirely outruns the process of the law. The public press of the country is the willing instrument of such manufactures, and the people are misled and deceived innocently into the purchase and use of these articles. I doubt if, among all the infringers upon sewing machines during the last three years, there could be found ten against whom a judgment for damages would afford any adequate remedy, or be of any value. In the year 1857, what was known commonly in the community as the Watson ten dollar machine was got up, and extensively advertised and sold throughout the country, and a great many manufacturers went into their production and sale. I think, in numbers, during the time they were prevalent, these ten dollar machines exceeded all others. They proved a failure and went out of use, but from their ashes sprang another species of infringement, which has overrun the country dur-

ing the last two years. It arose in this way ; some mechanic, I think a Mr. Raymond, in Connecticut, altered one of these single-threaded machines into a Grover & Baker machine, making it sew with two threads instead of one, and making the stitch made by the Grover & Baker machines. As soon as this became known, those who had been manufacturing single-thread machines, very generally, and nearly universally made similar changes in the machines they had been making, so that these machines were nearly simultaneously made, and offered for sale throughout the country. They advertised their machines as being equal to, and in many cases superior to the machines made by Mr. Howe's licensees, as improvements upon the Grover & Baker machine or the Wheeler & Wilson machine ; and I have no doubt there are more than one hundred such manufacturers and dealers in two-thread machines making the Grover & Baker stitch alone, throughout the country, and have been on an average during the last eighteen months. I have before me the circulars of more than thirty such infringers, and all, except perhaps, George B. Sloat and one or two others, advertise themselves as making a two-thread, double threaded machine, making the same stitch with Grover & Baker's. Several of these infringers have been workmen in our manufactory. Some of these manufacturers advertise their machines as being licensed under Elias Howe's patent, and as being recommended to the public by I. M. Singer & Co., Wheeler & Wilson, and Grover & Baker. I hold in my hand a circular containing upon its face such a statement. It purports to be manufactured and sold extensively in Chicago, by parties acting under the name of J. McCord & Co., and to be Bennett's improved. This Mr. Bennett was formerly a workman in our manufactory. Among these circulars is one purporting to be Wm. B. Young & Co.'s, who describes his machine as Young's double-thread family sewing machine, with late improvements. This circular contains a cut of the manufactory, and the description of it, in which it is described as being situated on Broadway Place, in Chicago, and states that it is a large establishment, occupying four stories, and carrying on the business extensively. Mr. Wil-

liams, of the firm of Williams & Orvis, of Boston, is one of this class of manufacturers, who was formerly a workman in our manufactory. It is due to some of these manufacturers to say, that they seem to be misled, and in ignorance of the real state of the facts and of the patents they are infringing, by the bolder and better informed among them.

George B. Sloat, of Philadelphia, is frequently quoted by these infringers as authority that they have a right to carry on their business, and that there are no valid patents to prevent them from so doing.

Nineteenth Interrogatory.—What has been the effect of these infringements referred to in your last answer within the last eighteen months upon Mr. Howe's income, and the business of his licensees, so far as you know?

A. The effect upon the business of his licensees has been to arrest it, and, to a great measure, stop it. In some parts of the country, especially in the Northwest and in St. Louis, where William B. Young & Co., and others of that class, have pressed their machines, our sales have been in a great measure stopped. I am satisfied Mr. Howe's income, during the past two years, would have been from one hundred to two hundred thousand dollars; I should say, at least, a hundred and fifty thousand, but for this infringement.

Twentieth Interrogatory.—Have these cheap, infringing machines benefited or injured the purchasers and the community?

A. I am satisfied that, as a whole, they have been a great injury to the purchasers and to the community, and especially to the poorer classes, who have been imposed upon by them. It is nearly every day's experience, that poor women come to our different places of business, and detail the frauds that have been practiced upon them by this class of dealers. They generally say that they are unable to find the man who sold the machine to them, and that he has gone. There are two manufacturers whose machines I have not thus heard spoken of.

Twenty-first Interrogatory.—State, in your own way, your estimate and the grounds of it, of the value and importance of Mr. Howe's invention to the public?

A. I have already said that I think the number of sewing machines in use in this country, embodying the substance of Mr. Howe's invention, is, at least, one hundred and twenty-five thousand, not including the vast number of cheap machines which have gone out of use, or are not capable of permanent use. I am satisfied that at least fifty thousand of this number would be found in daily use for manufacturing purposes. I think the saving upon each of these fifty thousand per day above hand labor, would a good deal exceed one dollar, and the annual saving by these fifty thousand machines, reckoning three hundred working days to the year, is at least fifteen millions of dollars.

The remaining seventy-five thousand I suppose to be employed by families, or by sewing women doing the work of families, and not by manufacturers proper. I have estimated the saving by each of these at twenty-five cents per day, which I think much below the actual saving, and this multiplied by three hundred days gives five millions six hundred and twenty-five thousand, which, added to fifteen millions, gives the aggregate of twenty millions six hundred and twenty-five thousand dollars, as the annual saving to the country by the sewing machine. I have heard much higher estimates, I think, than this, and I believe this to be entirely safe, and altogether below the actual saving. Mr. George G. Sickles, as counsel for Mr. Sloat, in a recent statement made by him before his honor, Judge Nelson, in my hearing, made a calculation of the value of the sewing machines to the country, based upon the number of families in the country, and the probability that all or a large part of these families, within the next few years, would use sewing machines, which statement would make the public value of the machines much higher than this. I do not recollect the exact value given by his statement. It would be difficult to calculate from any data which now exist, what will be either the annual saving to the country from the sewing machines, or the public value of the sewing machines ten years hence. As I have stated,

I am entirely convinced, that Mr. Howe's invention was the root and the trunk from which the sewing machine, in its present state of development, has grown, and I think it may be safely calculated, that the sewing labor of this country will, hereafter, be more and more done by machinery, until nearly all of it is so done ; and also, that no effective or valuable sewing machine will hereafter be made which will not contain, as its basis and foundation, the substance of Mr. Howe's invention. What the public value of his invention is, I leave to others to calculate.

Twenty-second Interrogatory.—State whether or not you have examined Mr. Howe's first model machine, and if so, what did you find to be its state of perfection and completeness as a first machine ?

A. I have not examined particularly the model in the Patent Office. I have examined many times the machine produced and testified to in court in my hearing, as having been built earlier than the Patent Office model, and as having been his first complete model of his invention. That model is more complete and perfect than any first model I have ever known to be built by any other inventor or workman in sewing machines to this time.

Twenty-third Interrogatory.—State whether or not the baster-plate feed, so called, is for many purposes a good feed for sewing machines ?

A. The baster-plate feed is, in theory and in practice, the only feed that bastes and holds two or more pieces of cloth together with entire accuracy, so that one layer or thickness shall not slip or stretch over the other. For all that class of sewing upon woven fabrics, where very short curves are not required to be turned, the baster-plate feed was and is a very good feed. I have heard, in several instances, those who had become accustomed to the use of baster-plate feed in sewing the class of materials I have mentioned, insist that it was the best feed for that class of work, and that they would not exchange it for the pressure friction feed, so called.

Twenty-fourth Interrogatory.—State how it compares with other feeds now in use, in respect to accurate automatic spacing of the stitches?

A. My opinion is, that a well constructed baster-plate would move the goods more accurately, stitch by stitch, and space the stitches more accurately than any other feed.

Twenty-fifth Interrogatory.—Have you ever examined the claims of Walter Hunt to have invented a sewing machine; and if yea, when, for what purpose and under what circumstances, and what assistance did you have, and did he have, if any, and what was the result of such examination upon your own judgment of his claim, and upon your practical course in business, in respect to Mr. Howe's patent?

(Counsel for opponents objects to the question so far as it calls for any result upon the witness' judgment, or for the witness' judgment as the result of any examination, as being incompetent.)

(The part of the question objected to is insisted upon, because it calls for a fact best known to the witness.)

A. I have so examined the claims made by or in behalf of Walter Hunt. I examined them carefully and fully with Mr. Hunt himself, at Boston, very early in the year 1853, at the office of William Whiting, in Boston, on the occasion of a suit in equity, I think, brought by Mr. Howe against Wooldrige, Keene & Moore, of Lynn, Massachusetts. Mr. Hunt's invention was set up in that case to defeat Mr. Howe's patent. Mr. William Whiting and the late Mr. Choate of Boston, were at that time counsel for Grover, Baker & Co. Mr. Whiting sent to my place of business and requested me to come to his office and take part in the preparation of the defence to the case I have mentioned. He stated to me that it was to rest mainly, if not entirely, upon Walter Hunt's experiment or invention, and that Mr. Hunt, with the relics of his machine, would be present. He deemed it important

that I should be present and form my own judgment in relation to it, with a view to the future course of our company with reference to taking a license under Mr. Howe's patent, or joining the opposition in an attempt to defeat it. On the morning of the day appointed, I went to Mr. Whiting's office as requested, and was there introduced to Walter Hunt by Mr. Whiting. Mr. Durant, Mr. Whiting's associate in that case, was also present. What appeared to be the remnants of an old machine, made mostly in wood, were also there. Mr. Whiting had procured, and had present, samples of all or nearly all the sewing machines then known to me as having been built since Mr. Howe's patent. These remnants, or relics, appeared to have upon them marks and attachments, or places designed for attachments, which were in some how connected, or were to be connected, with other parts of the machine, which were not present. Mr. Whiting had a carefully prepared statement of the things necessary to be remembered, and of the different connections and movements necessary to be remembered and described by Mr. Hunt, in connection with these remains, in order to make them available as a defence. With these aids, and with Mr. Whiting and Mr. Durant by his side, and with the other sewing machines, to which Mr. Hunt made frequent reference and examined, we spent the entire day in attempting to obtain from Mr. Hunt a description, recollection or statement, from which it could be learned, or arrived at, how his machine was constructed or operated. At the close of that day we had not been able to obtain from him any such description, recollection or statement from which he could tell, or any of us could tell, how the machine ever operated, if at all, or how the necessary parts of a sewing machine, which were not present, could be so connected with or erected upon these relics as to present to the court any idea how his machine was made or did operate. Having failed to get any aid from Mr. Hunt, Mr. Whiting, in my hearing, directed him to return to New-York, or told him that he might so return, as he did not see that he could aid them in the matter. Mr. Hunt expressed his regret at his inability to aid them in the defence by remembering the description of the machine, and he returned to

New-York. He said, however, in the evening, before parting with him, that he had a brother, I think his name was Adoniram, who was dead, but who, if living, he thought might have remembered more about the old machine than he did. The conviction produced upon my own mind by that day's labor has never been changed or altered. It was, that Mr. Hunt had made an experiment with a view to build a sewing machine, and that this experiment was in the right direction, but that it was never perfected or completed so as to form any part of the public knowledge, or of any art, and that it was entirely abandoned on the part of Mr. Hunt before being so completed, and had been altogether forgotten. Mr. Hunt was pressed in every possible way that the great ability and ingenuity of Mr. Whiting could suggest, in order to obtain from him a clue to enable him, Mr. Whiting, to reconstruct the machine, or to tell how it could be constructed upon those remains, and the result was as I have stated. The conviction I have stated as to this experiment, and the reasons of it, I stated at the time at length to my associates in business, and they and myself both resolved that we would have nothing to do with any attempt further to bring forward or give reality to this experiment of Hunt's, but that unless some better defence to Mr. Howe's patent could be found, it was our duty to submit to pay a license under it. We acted accordingly, and took our license, and have paid Mr. Howe, pursuant to it, considerably over one hundred thousand dollars as license fees. I have never changed, and my associates have never changed, the judgment we then formed of Hunt's experiment.

Not many days after the day spent at Mr. Whiting's office Mr. Whiting met me in the street, and stated to me that he had got a theory upon which he thought a sewing machine could be constructed and operated upon, and in connection with the old relics. He said he was going to send for Mr. Hunt, or to Mr. Hunt, to see whether he would adopt this theory of the machine. He said if Mr. Hunt adopted it, he intended to place it before the court as an answer to Mr. Howe's patent. I complimented him upon his mechanical ability, if he had succeeded in finding out such a theory, and

he invited me to come up and hear his argument to the court when he should put his theory forth, if adopted by Mr. Hunt. I learned from him afterwards that Mr. Hunt adopted or accepted the theory, and the time when the argument was to be made before Judge Sprague. I had great curiosity to hear Mr. Whiting put forth and argue his theory of the old machine, and attended court and heard it. It did not in the least weaken or change the conviction to which I had previously come as to the nature and extent of Mr. Hunt's experiment. I also knew of the subsequent attempt to obtain a patent for this machine of Hunt's, and have seen the decision of the commissioner upon that application, but nothing has changed my opinion since that day's interview with Mr. Hunt himself.

(And on his cross-examination by Samuel Blatchford, Esq., of counsel for opponents, as follows :)

First Cross-Interrogatory.—Please state whether, in any of the machines made by Wheeler & Wilson, Grover & Baker, I. M. Singer & Co., Ladd, Webster & Co., A. B. Howe, Leavitt & Co., Finkle & Lyon, or Bartholf, a curved sewing needle is used, and if so, in which ?

A. In all those I have ever seen built by Wheeler, Wilson & Co. a curved needle is used ; in all the family sewing machines built and sold by our company a curved sewing needle is used ; in most of the machines of Mr. Bartholf's manufacture, that I have seen, a curved needle is used, although, I think, he makes some with a straight needle ; and in the best of A. B. Howe's machines that I have seen, a curved sewing needle is used. I don't remember that I ever saw a curved sewing needle machine made by Singer & Co., Ladd, Webster & Co., or Finkle & Lyon. A portion of those built by Leavitt & Co., if I recollect rightly, use the curved sewing needle. The degree of curvature depends upon the length of the needle-arm from the centre on which it vibrates to the needle. The needle is always curved, so that it would lie in line with the circumference of a circle, of which the

needle-arm is the radius; and therefore varies in these machines with the length of the needle-arm.

Second Cross-Interrogatory.—Please state whether you are a stockholder in both the Grover & Baker and the Wheeler & Wilson Companies?

A. I am a stockholder in the Grover & Baker Company. I have no interest in the Wheeler & Wilson Company, and never had.

Third Cross-Interrogatory.—Please state what proportion of the whole stock of the Grover & Baker Company you own or are interested in?

A. The stock is one hundred and fifty thousand dollars. I own forty-eight thousand five hundred.

Fourth Cross-Interrogatory.—Please state what license fees per machine are now paid to Elias Howe, Jr., by the several parties named in the first cross-question?

A. Our company, the Wheeler & Wilson Company, and I. M. Singer & Co. now pay three dollars per machine on each machine sold in this country, and one dollar a machine on those sold for exportation or exported. I have no personal knowledge what the other parties named in the interrogatories pay, although, I think, I have understood that they pay five dollars per machine—those of them who pay any thing. I was never aware that Finkle & Lyon paid any license, and I think they never have. I think all the rest pay license fees.

Fifth Cross-Interrogatory.—Please state when your company and the Wheeler & Wilson Company took licenses from Mr. Howe, and at what rates, and what the various modifications of rates have been as respects those two companies, and I. M. Singer & Co.?

A. The Grover & Baker Company's license was executed, I think, in August, 1853; Wheeler, Wilson & Company's a little earlier, during the same summer. I do not know its precise date. I was informed that Wheeler, Wilson & Co.

accepted their license at twenty-five dollars per machine license fee, but with a covenant that they should have as favorable terms as should afterwards be made with any parties. When Grover, Baker & Co. took their license, it was stipulated that the license fee should be ten dollars per machine on those built and sold up to that time, ten dollars per machine on the first thousand to be built thereafter, nine dollars on the second thousand, eight dollars on the third, seven dollars on the fourth, six dollars on the fifth, five dollars on each machine thereafter built and sold for use in this country during the term of the patent. The license fee was to be one dollar per machine on all machines exported, and on exported machines the license has never been varied. Wheeler, Wilson & Co., by virtue of the covenant to which I have referred, had their license reduced immediately the same as Grover & Baker. The first variation that was made in the license was in the fall of 1856, the latter part of October, when Mr. Howe agreed with the three companies named to reduce his license fee from that time to five dollars per machine on all sold in this country, in consideration that those companies would cease litigation among themselves, and would supply the demand throughout the country for their various machines. I. M. Singer & Co.'s license has always been the same as Grover, Baker & Co.'s in respect to the license fee. Some time, I think in the year 1858, in the summer, I think, Mr. Howe granted to our companies another reduction to three dollars per machine sold for use in this country, on condition that we would reduce the price of our machines, so as to supply a good machine at retail at not over fifty dollars. There have been no other changes that I know of.

Sixth Cross-Interrogatory.—Please state what is the substantial part of Mr. Howe's patent that you speak of in your direct examination, as being used in single-thread machines?

A. These machines, so far as I have seen them in general use, employ a stitching mechanism, consisting of an eye-pointed needle, which carries the thread and the hook or other equivalent device for concatenating the stitch upon the under side of the cloth, so as to prevent its withdrawal

from the material when the needle is withdrawn, in combination and co-operation with the necessary mechanism for holding and feeding the cloth regularly stitch by stitch, spacing the stitches regularly while being sewed, with suitable mechanism for obtaining tension upon the thread, so as to make the seam firm; in other words, they embrace and embody in a single machine the stitching mechanism, the holding and feeding mechanism, and a suitable tension upon its thread to form a seam; and in so far as they do that, in my judgment, they use a substantial part of Mr. Howe's invention. Indeed, in this respect, they use the substance of it, only varying one element of it, namely, the stitching mechanism, by substituting instead of one part of this, to wit, the shuttle, a concatenating hook. These machines also use, all of them that I have seen, substantially the same holding mechanism as Mr. Howe's, by which, I mean the mechanism for suitably holding the cloth at and about the point of sewing, against both the thrust and withdrawal of the needle, so that it shall not be thereby displaced, but shall be held under a suitable degree of pressure or impingement at this point, constantly during the making of the seam, so that the stitches shall be uniform and regular. This holding mechanism was entirely new in Mr. Howe's machine, and will be found in all single-thread machines of any value, in my judgment.

Seventh Cross-Interrogatory.—Of the two hundred thousand sewing machines which you estimate as having been made in this country, how many do you estimate have not been made under license from Elias Howe?

A. I think you have misapprehended my answer in this respect. I did not mean to say that my estimate of the machines that have been made and sold was two hundred thousand, for, in my judgment, many more machines than that have been made and sold in this country. I think that two hundred thousand two-threaded machines have been made, and of these Mr. Howe's licensees have made about one hundred and twenty-eight thousand. I have recently examined the returns of the licensees to inform myself upon this subject.

Eighth Cross-Interrogatory.—Of the one hundred and twenty-five thousand double-threaded sewing machines, which you speak of as now in use in this country, how many do you estimate have been made under license from Mr. Howe?

A. It is difficult to form a satisfactory estimate on that subject. I can give you the elements from which you can calculate it. The one hundred and twenty-eight thousand made by Mr. Howe's licensees embraces as well those exported as those used in this country, and the exportation has been considerable by Mr. Howe's licensees. The one hundred and twenty-five thousand I suppose to exclude all that had been lost, broken up, destroyed by fire or in any way gone out of use, that have been made by Mr. Howe's licensees; but to include a large number of effective machines, such as Mr. Sloat's, which have been built and put in use in this country by parties other than Mr. Howe's licensees. I think I said that, in my judgment, one hundred and twenty-five thousand was below the number of effective machines now actually in use, employing two threads and embodying the substance of Mr. Howe's invention. I should suppose that about seventy or seventy-five thousand machines, made under license from Mr. Howe, are in use in this country. It is impossible to tell, because of the effective machines that have been recently made, and which are generally found in use, and which have not paid a license. I do not know the number.

Ninth Cross-Interrogatory.—How many single-threaded sewing machines do you estimate have been constructed and put in use in this country, and how many such do you estimate are in use now in this country?

A. I have not undertaken to make an estimate of how many single-threaded machines have been sold, or how many are in use; and I have not included any single-threaded machines in the number of effective machines I estimate as in use in this country. I have no data by which I could form a reliable judgment as to the number of these machines which have been made and sold in this country, or which

remain in use. They were very extensively made and sold during the year 1857, and, I think, some portion of the year 1856. While prevalent, I think their sale equalled in number the entire sale by Mr. Howe's licensees. I do not know any of those machines except one now being sold in the country. There may be. This one is licensed under Mr. Howe's and other patents.

Tenth Cross-Interrogatory.—How many of one hundred and twenty-eight thousand machines do you estimate have been exported, and of those how many to Great Britain?

A. I have not examined so as to be able to give at this moment a reliable answer to this question. It can be ascertained by reference to Mr. Howe's returns. On the instant, I should estimate that about twenty thousand altogether had been exported by Mr. Howe's licensees. It may be twenty-five and it may be fifteen. Of these, a considerable number have been exported to those parts of Great Britain to which Mr. Thomas' patent does not extend. His patent is confined to England. I should think, on the instant, the exportation to Ireland and Scotland by Mr. Howe's licensees, at about five thousand. The exportation to England has been comparatively limited. During the last three years previous to March last, our company have been excluded from England by Mr. Thomas' patent altogether. Since March, I think we have exported to England four or five hundred machines, which have been sold under license from Mr. Thomas, as I have stated.

Eleventh Cross-Interrogatory.—Please state what is the average retail price of your machines sold in England, on which the ten per cent. you pay Mr. Thomas is calculated?

A. I do not know the exact retail price, and, therefore, cannot give you the exact average. The agreement between Mr. Thomas and the parties who sell our machines there, and which I have seen and examined, is that they shall pay him ten per cent. on the actual price at which they retail their machines. The retail price I understand to be from about forty dollars to one hundred dollars per machine. At present Mr. Thomas' retail price is much higher.

Twelfth Cross-Interrogatory.—As the result of your investigations in England, about what number of sewing machines do you find have paid royalty to Mr. Thomas there?

A. I do not think that the number of machines exported from this country that have paid royalty to Mr. Thomas prior to those exported since March by our company has been large, perhaps not more than five hundred altogether.

I have been informed by manufacturers from England that Mr. Thomas has enforced a very heavy royalty against all sewing machines made in England, and that he has licensed the manufacture of none there until recently, say within the last twelve or fifteen months. I have no knowledge how many have been made in England which have paid him royalty.

Thirteenth Cross-Interrogatory.—Are not all or very nearly all of the sewing machines made by the licensees of Mr. Howe protected or covered by patents, more or less, other than Mr. Howe's?

A. So far as patents in this country at this time afford protection to sewing machines, many of the machines made by Mr. Howe's licensees are, to a considerable extent, protected. The machines made by I. M. Singer & Co., and all machines of that class, are mainly protected under Mr. Howe's patent, so far as patents are a protection. The Wheeler & Wilson machine is covered by patents, which ought to protect it, but practically, in the present state of the patent law and of the morals of the manufacturers and users of infringing machines, that machine has had little or no protection, except under Mr. Howe's patent. The Grover & Baker machines are also patented by patents, which ought to protect them, but which, thus far, in the present state of the law of infringement, have afforded them no protection practically.

Fourteenth Cross-Interrogatory.—Please to explain what you mean by the savings of one dollar a day, and twenty-five cents a day, which you say you think are the savings above hand labor, on each of the classes of machines, in regard to which you have given your estimate of saving.

A. I mean this: that I am satisfied, taking the average of

manufacturing puposes proper, for which sewing machines are used, that the saving is at least one dollar per day on each machine in use, above what it would cost to do the same labor by hand. I think it is much more than one dollar per day ; but I estimate it at one dollar, in order to be sure not to be above the mark. In some parts of the country, and in some kinds of manufacture, the saving by machine labor is much higher than in others. In leather work generally, and the more expensive kinds of labor which sewing machines have displaced, the saving will be much more than a dollar to the manufacturer, while, in other kinds, it might not be more. I mean that the manufacturers, on an average, save to themselves at least one dollar per day on every sewing machine in use, and they do this without any diminution, but under an increase of daily wages paid to their operatives. I suppose the machines in use in families, and used by needlewomen in doing the sewing of families, save to such families at least twenty-five cents per day on each. I think they save much more.

Fifteenth Cross-Interrogatory.—Do you understand that Walter Hunt is now dead ?

A. I have been so informed.

The further examination was then adjourned to August 1st, 1860, at half-past ten, A. M.

Attest,

HORACE ANDREWS,

Comm'r of Deeds.

New-York, August 1, 1860.

Pursuant to adjournment last noticed, Causten Browne, Esq., of counsel for Elias Howe, Jr., and Samuel Blatchford, Esq., of counsel for opponents, appeared, and the taking of testimony on the part of said Howe was thereupon continued as follows :

ORLANDO B. POTTER, being recalled and re-examined on the direct, by Joel Giles, Esq., of counsel for said Howe, testified as follows :

Twenty-sixth Interrogatory.—Since testifying yesterday, have you examined the remains of an old machine in the possession of R. E. Stillwell, a commissioner taking testimony in this case, and to be marked by him as an exhibit therein ; and if yea, state whether you recognise said old machine or remains as the same referred to in your previous answers, as seen by you in consultation with William Whiting, Esq., and Walter Hunt, and others, at Boston, while preparing a defence in one of Mr. Howe's infringement suits, founded on his sewing machine patent of September 10th, 1846 ?

A. I have examined them at Mr. Stillwell's office, this morning. I am satisfied they are the same I saw at Mr. Whiting's office on the occasion referred to. They are, unless counterfeits of them have been made ; all except the shuttle and needle. I do not remember to have seen the needle now with these remains, nor the shuttle, although I think a shuttle was there ; whether it is the same I can't tell.

O. B. POTTER.

City and County of New-York, ss.:—On this 1st day of August, 1860, before me personally came the above-named Orlando B. Potter, and made oath that the foregoing deposition by him subscribed contains the whole truth and nothing but the truth.

The said deposition is taken at the request of Elias Howe, Jr., to be used upon the hearing of his application for an extension of his patent of September 10th, 1846, before the Commissioner of Patents of the United States, at his office, on the 13th day of August, 1860.

The parties opposing were duly notified, as appears by the original notices hereto annexed, and attended by Samuel Blatchford, Esq.

Certified by me,

HORACE ANDREWS,

Com'r of Deeds.

JAMES M. RAYMOND, being duly sworn, doth depose and say, in answer to interrogatories proposed to him by Causten Browne, Esq., of counsel for Elias Howe, Jr., as follows :

First Interrogatory.—What is your name, age, residence and occupation, and are you connected with any and what tailoring establishment in the City of New-York ?

A. James M. Raymond ; age, fifty ; residence, 137 East Eighteenth-street. Am a merchant tailor, of the firm of St. John, Raymond & Co.

Second Interrogatory.—Have you recently, and when and where, witnessed the sewing of some cloth upon a small machine, said to be an original Howe model sewing machine, and will you produce the piece of sewing done upon that occasion ?

A. I did, this morning, at Mr. Howe's office in Broome-street, and I produce the sample, (annexed to the deposition and marked Exhibit A. 7.) I witnessed a similar experiment a few days ago at the same place on the same machine. The piece of sewing which was then done was in my possession, but I have mislaid it and cannot find it.

Third Interrogatory.—What was the time taken to sew the piece now produced and the piece sewed the other day, or how many stitches were put in by the machine in question per minute ?

A. The first piece was two hundred and forty, about, per minute. The second was not fully timed ; it was not quite so fast. The first exhibition was by the treadle, the second was by hand.

Fourth Interrogatory.—What do you consider to be the character of the sewing done the other day, and that of the sample now produced, as compared with any other machine sewing with which you are acquainted, and also as compared with good hand sewing ?

A. I consider the stitch and strength of the work equal to any that I have seen, and it is more perfect and even than any hand sewing that I have ever seen.

Fifth Interrogatory.—Did you make any experiment with the sample that you had the other day to ascertain how well and how fast, in comparison with the work done upon it, one of your hand sewers could work?

A. I did. A fast hand sewer will take from forty to forty-five stitches per minute. They will not be as perfectly even and regular, however, as those sewed by machine. That was the actual result of an experiment I made at that time with one of my fastest hand sewers, alongside of this piece of sewing.

Sixth Interrogatory.—Are you using sewing machines in your business at this time, and how many and of what kinds?

A. My hands, the employées of the concern, use them; perhaps, three-quarters of them. We do not use them in the store. Several of them use Singer's, and some Wheeler & Wilson's. I cannot state all with certainty.

Seventh Interrogatory.—What has been the effect of the introduction of the machines upon the making of clothing, within your observation and experience, as to reducing the price of labor, or as to increasing the cost of the garments to the purchaser or otherwise?

A. With us it has not either reduced or increased the price of the manufacture. We pay precisely the same, but we give more work to the customer; that is, put in more work to each garment by the machines, without increasing the price to the customer.

Eighth Interrogatory.—How has the introduction of the machines affected the sewing classes as to their condition, particularly as to their being able to earn more or less wages with a given amount of labor?

A. I should judge favorably. So far as I know, our hands make better wages with the use of the machines than they did before without them. The fatigue of labor is much lighter with machine work than with hand work.

Ninth Interrogatory.—Do you know of any class of per-

sons connected with the sewing work, whom the introduction of the sewing machines has not affected, more or less, beneficially?

A. I do not, in my acquaintance with the working classes around us.

Tenth Interrogatory.—In the operations of sewing by the Howe model machine which you witnessed this morning and the other day, was there any handling of the cloth about the feed, or did the feed take the cloth and carry it through unassisted?

A. He simply held the cloth in the machine—Elias Howe, who operated it—without paying any regard to the feed, above or below. It sewed it perfectly, without driving either part, that is, feeding one side of the cloth faster than the other. I have sometimes seen in wheel-feed machines one part of the cloth carried faster than the other, which is not the case in this.

Eleventh Interrogatory.—How does the operative remedy that trouble in the wheel-feed machines you speak of, and what would be the effect of it upon the garment if not remedied?

A. He remedies it by a skilful handling of the cloth near the sewing, to keep it from driving. If not prevented, it would in many cases be injurious to the fit of the garment.

JAMES M. RAYMOND.

City and County of New-York, ss.:—On this 1st day of August, 1860, before me personally came the above-named James M. Raymond, and made oath that the foregoing deposition by him subscribed contains the whole truth and nothing but the truth.

The said deposition is taken at the request of Elias Howe, Jr., to be used upon the hearing of his application for an extension of his patent of September 10th, 1846, before the Commissioner of Patents of the United States, at his office, on the 13th day of August, 1860.

The parties opposing were duly notified, as appears by the original notices hereto annexed, and attended by Samuel Blatchford, Esq.

Certified by me,

HORACE ANDREWS,
Com. of Deeds.

AMASA B. HOWE, being duly sworn, doth depose and say, in answer to interrogatories proposed to him by Causten Browne, Esq., of counsel for Elias Howe, Jr., as follows :

First Interrogatory.—Was the model machine to which you referred in your former deposition in this case, as having done certain work at Quincy Hall, and upon certain suits of clothes, the same which was patented to your brother, September 10th, 1846 ?

(Counsel for opponents objects to the question, 1st, as leading ; 2d, as calling for the statement of a result, which result can only properly be arrived at by the description by a competent mechanic of the construction and arrangement of the model machine referred to in the question, and then the comparison of that description with the description in the specification and drawings in the patent referred to ; 3d, as calling upon the witness to decide what was patented by said patent, which is a question of law.)

(The question is amended by substituting for the word “ patented,” the words “ described and represented in the patent.”)

(The objection is renewed to the question as amended, on the first and second grounds before stated.)

A. It was the first machine that he made, and is constructed substantially in accordance with the specifications and drawings in the Patent Office.

Second Interrogatory.—Have you seen any sewing work done recently upon that machine, or one like it, and when and where ; and will you produce, if you can, some of the sewing work so done?

A. I have operated that same machine last week and to-day, and produce a sample of such sewing, which shows on one side a brown thread, and on the other a black thread, (marked Exhibit B.) I also saw the specimen, marked Exhibit A., sewed this morning with the same machine.

Third Interrogatory.—How fast was the sewing done upon the sample just produced by yourself, and was the machine worked by the treadle or by hand?

A. It was sewed at the rate of two hundred stitches per minute, and worked by hand.

Fourth Interrogatory.—As compared with this, how was the speed of the machine in doing the work you speak of in 1845?

A. At about the same speed.

Fifth Interrogatory.—State what is the case in sewing upon this machine, and also in sewing upon wheel-feed machines, as to the equal movement of the two parts of the cloth by the feed, and as to the necessity of manipulating or assisting either part, to prevent unequal movement of the two parts, or “driving,” so called?

A. With the baster-plate machines, the cloth is neither stretched nor contracted in the process of sewing. With the wheel-feed machine, there is great liability of stretching the cloth while passing through the machine, and a further liability of stretching the upper cloth in forming seams with two pieces of cloth, so that in sewing one yard in length the upper piece will be stretched from one to two inches, unless skilfully counteracted by the manipulation by the fingers of the operator. This stretching of the cloth is the great cause of objection that journeymen tailors have of doing by machine fine custom coat work, when they require perfect fits, as the tendency of wheel-feed machines always is to stretch

the seam beyond the natural surface of the cloth. The baster-plate-feed always leaves the length of the seam as it was cut from the cloth.

Sixth Interrogatory.—Will you state what the facts were in regard to the Howe machine, which your brother manufactured for Whiting & Doubleday, in or about the year 1850, as testified by William E. Whiting, a witness on behalf of the opponents of this application, and of which Mr. Whiting testifies that they did not work satisfactorily, or make satisfactory work. Also state how many of these machines he so made, how much and where they were used, and what became of them?

A. After the arrangement between my brother and Morey, Whiting & Jackson, my brother went into the shop of A. Bartholf, 33 Gold-street, New-York, in the winter or spring of 1851, where Mr. Bartholf constructed some twelve or fourteen sewing machines, according to the instructions of my brother. These machines were all used and sold, except two of them. At the fair of the American Institute, held at Castle Garden in the fall of 1851, I exhibited two of these machines, and employed a young lady to operate them on pantaloons and coat work, during the whole term of the fair. Before and after the fair, these machines were kept in daily operation upon over gaiters, pantaloons and other work, at 201 Broadway, at which place I sold two or three of these machines. Mr. William R. Bliss took several of them into his boot manufactory, in Wooster, Massachusetts, and used them on boot tops, and sold some of the machines to other manufacturers. The work produced was perfect work, as good work as any machines made at that date. The machines were not so rapid in movement as some other machines designed and constructed by my brother immediately after these were made. I had two of these machines in my possession some five years ago, which I broke up and sold for old metal.

Seventh Interrogatory.—For whom were these machines, mentioned in the last answer, made?

A. They were made for Morey, Whiting & Jackson.

Eighth Interrogatory.—If you perceive in the statements of Mr. Whiting, in his deposition referred to, any other material errors of facts, will you state them?

A. I think Mr. Doubleday's name was not mentioned in the document which he says was recorded in Washington.

I think Mr. Whiting's interest was one-sixth. Mr. Whiting never acquired any interest in the patent. The document to which he refers was an agreement by which he was to acquire an interest in case he furnished a certain sum of money by a specified time, which sum he failed to furnish.

Mr. Bartholf furnished a small room for an office, which had a five dollar desk and two fifty-cent chairs, and no other furniture. The office was in Gold-street. I think no rent was ever paid to Mr. Bartholf for that room.

Suits were already commenced by my brother against O. C. Phelps & Bradford, before Whiting, Morey & Jackson acquired any interest in the patent, and said Morey, Whiting & Jackson had relinquished all their interest before these suits came to trial.

I see nothing else of importance.

And on his cross-examination by Samuel Blatchford, Esq., counsel for opponents, as follows:

First Cross-Interrogatory.—Please state in the sample you have produced, marked Exhibit B., which thread was the needle thread, and which was the shuttle-thread?

A. The brown thread was the needle-thread, the black the shuttle-thread.

Second Cross-Interrogatory.—Is fine custom coat work generally done upon machines with a baster-plate feed?

A. It is not. I do not think much of it is done by any machines, that is, the seams of the coat.

A. B. HOWE.

City and County of New-York, ss.:—On this 1st day of August, 1860, before me personally came the above-named Amasa B. Howe, and made oath that the foregoing deposition

by him subscribed contains the whole truth and nothing but the truth. The said deposition is taken at the request of Elias Howe, Jr., to be used upon the hearing of his application for an extension of his patent of September 10, 1846, before the Commissioner of Patents of the United States, at his office, on the 13th day of August, 1860.

The parties opposing said application were duly notified, as appears by the original notices hereto annexed, and attended by Samuel Blatchford, Esq.

Certified by me,

HORACE ANDREWS,

Comm'r of Deeds.

HENRY B. RENWICK, being recalled on the part of the applicant, Elias Howe, Jr., deposes and says as follows :

First Interrogatory.—Have you made any investigation with a view to estimate the value to the public of the invention in sewing machines of Elias Howe, Jr., patented September 10th, 1846 ; and if yea, state your opinion of its value, and on what you base such opinion ?

A. I have been informed and led to believe, that there are now in use in the United States at least one hundred thousand sewing machines which contain the invention of Elias Howe, Jr., as set forth in his patent ; and from operating with sewing machines myself, from seeing others operate them, and from conversations with manufacturers, I am of opinion that not less than two dollars per day is saved by each day's work of any of the approved machines now in use. On the supposition that one-quarter of these machines are used in maunfactories, or by persons who depend upon them for a livelihood, which machines are therefore used daily ; and on the supposition that the other seventy-five thousand machines are used in families, and are not employed on an average more than thirty days in a year, it would give, on an average, ninety-eight days work for each machine now in use, so that the whole number of days worked by all the machines in one year would be 9,800,000, which, at \$2 per day, would

be \$19,600,000 per year. Knowing, as I do, the subsequent improvements which have been built upon, or added to Howe's invention, and estimating, as I believe, fully their value, I cannot place the value to the public as derived from Howe's invention at less than one-quarter of this sum; and in so doing feel conscious that I underrate rather than over-estimate the amount due to his invention. This would leave the yearly gain to the public from the use of Howe's invention, \$4,900,000, which would represent, in round numbers, the interest on a capital of \$90,000,000. Under the supposition that no more sewing machines are to be built, and that those which are built are kept in repair and worked, as before stated, the last named sum would represent to the public the value of Howe's invention.

In answer to cross-interrogatories proposed to him by Samuel Blatchford, Esq., on behalf of the opponents, he says as follows:

First Cross-Interrogatory.—With reference to the remark made by you, in answer to the first direct interrogatory to you on being recalled, that you know and have estimated the subsequent improvements that have been built upon or added to Howe's invention, please state whether you have read the four cross-interrogatories put by me to Edward S. Renwick on his examination in this matter before Mr. Stillwell, and his answers thereto, and state whether you substantially agree with him in said answers?

A. I have read them and substantially agree with him.

HENRY B. RENWICK.

Subscribed and sworn to before me, }
this 2d August, 1860. }

R. E. STILLWELL,
U. S. Com'r.

Adjourned to 3d August, at 10, A. M.

WILLIAM H. PLUMMER, being duly sworn, doth depose and say, in answer to interrogatories proposed to him by Causten Browne, Esq., of counsel for Elias Howe, Jr., as follows :

First Interrogatory.—What is your name, age, residence and occupation ?

A. William H. Plummer ; age, 31 ; New-York ; clerk to Elias Howe, Jr.

Second Interrogatory.—Did you assist Mr. Howe in endeavoring to procure information respecting claims against persons infringing his patent ?

A. I did.

Third Interrogatory.—What difficulty, if any, did you find in getting at the particulars in reference to such claims, and why ?

A. I found parties generally tried to conceal their names, and acted through third persons. Some would say they did not infringe. Parties that we knew did infringe would refuse to give any information as to the extent. In most of the cases we generally found that they were irresponsible parties and insolvent.

Fourth Interrogatory.—From the best judgment you can form, what do you consider the claims of Mr. Howe against persons for infringing his patent to be worth ?

A. I consider them worth but very little. I have talked with lawyers upon the matter as to the worth of such claims, and they said that the cost of collecting them would be worth the claim. I should not want to say that I would pay any thing for them myself.

W. H. PLUMMER.

City and County of New-York, ss.:—On this 1st day of August, 1860, before me personally came the above-named William H. Plummer, and made oath that the foregoing deposition, by him subscribed, contains the whole truth and nothing but the truth. The said deposition is taken at the

request of Elias Howe, Jr., to be used upon the hearing of his application of for an extension of his patent of September 10th, 1846, before the Commissioner of Patents of the United States, at his office, on the 13th day of August, 1860. The parties opposing were duly notified, as appears by the original notices hereto annexed, and attended by Samuel Blatchford, Esq.

Certified by me,

HORACE ANDREWS,

Comm'r of Deeds.

JAMES S. McCURDY, being duly sworn, doth depose and say, in answer to interrogatories proposed to him by Joel Giles, Esq., of counsel for Elias Howe, Jr., as follows:

First Interrogatory.—What is your name, age, residence and occupation?

A. James S. McCurdy ; age, 32 ; residence, Brooklyn ; present occupation, experimenting on sewing machines.

Second Interrogatory.—State whether or not at any time you have assisted Elias Howe, the applicant, in looking after infringers of his patent, and if so, what success you have had?

A. I have. The extent of my success has been, that it was almost impossible to ascertain the individual parties infringing the machines. I found a great many machines that did infringe, and the parties making the machines were hard to find.

Third Interrogatory.—State the difficulties, if any, of ascertaining the names of infringers, the place of infringement, the extent of the infringement, and the responsibility of parties infringing?

A. The parties infringing were not disposed to let their names be known. I never could find, except, with perhaps, in an instance or two, a responsible party.

If they suspected my business, I could get no definite information. That was the general result of my inquiries.

Fourth Interrogatory.—As the result of all your inquiries for Mr. Howe, respecting infringements of his patent, what value do you attach to his claims against infringers?

A. I don't think I would take them for nothing, if I was obliged to prosecute them.

JAMES S. McCURDY.

City and County of New-York, ss.:—On this 1st day of August, 1860, before me personally came the above named James S. McCurdy, and made oath that the foregoing deposition, by him subscribed, contains the whole truth, and nothing but the truth.

The said deposition is taken at the request of Elias Howe, Jr., to be used upon the hearing of his application for an extension of his patent of September 10th, 1846, before the Commissioner of Patents of the United States, at his office, on the 13th day of August, 1860.

The parties opposing were duly notified, as appears by the original notices hereto annexed, and attended by Samuel Blatchford, Esq.

Certified by me,

HORACE ANDREWS,

Comm'r of Deeds.

SEYMOUR N. MARSH, being duly sworn, doth depose and say, in answer to interrogatories proposed to him by Causten Browne, Esq., of counsel for Elias Howe, Jr., as follows :

First Interrogatory.—What is your name, age, residence and occupation?

A. Seymour N. Marsh; age, 54; residence, New-Jersey; I do business in New-York; am in the truss and bandage business.

Second Interrogatory.—Do you use sewing machines in that business, and how many, and whose make?

A. We use two; one of Grover & Baker's and one of Ladd and Webster's.

Third Interrogatory.—Did you previously make these articles by hand?

A. Yes, Sir.

Fourth Interrogatory.—How many hand workers at it do you consider one sewing machine worth?

A. On reflection, I consider one sewing machine in my business equal to ten women.

Fifth Interrogatory.—How does the workmanship by machine compare with that done by hand, in your business?

A. The workmanship is superior.

S. N. MARSH.

City and County of New-York, ss.:—On this 1st day of August, 1860, before me personally came the above-named Seymour N. Marsh, and made oath that the foregoing deposition by him subscribed contains the whole truth and nothing but the truth.

The said deposition is taken at the request of Elias Howe, Jr., to be used upon the hearing of his application for an extension of his patent of September 10, 1846, before the Commissioner of Patents of the United States, at his office, on the 13th day of August, 1860.

The parties opposing said application were duly notified, as appears by the original notices hereto annexed, and attended by Samuel Blatchford, Esq.

Certified by me,

HORACE ANDREWS,

Comm'r of Deeds.

MARY O. BUSH, being duly sworn, doth depose and say, in answer to interrogatories proposed by Causten Browne, Esq., of counsel for Elias Howe, Jr., as follows:

First Interrogatory.—What is your name, age, residence and occupation?

A. Mary O. Bush; aged thirty-one; residence, 264 Sixth Avenue; manufacture ladies' and children's clothing.

Second Interrogatory.—Do you use sewing machines in your business, and how many, and of what kind, and how many hands do you employ upon them?

A. We do use sewing machines; we are using eight now of Wheeler & Wilson's, and formerly used Grover & Baker's, Eureka and others. We employ averaging eight to ten hands, and formerly used for the same work by hand, thirty and thirty-five.

Third Interrogatory.—Has your business increased or diminished in the aggregate since you resorted to the machines?

A. Increased.

Fourth Interrogatory.—How is the work done on the machines in comparison with hand sewing?

A. It receives the preference by our customers, and wears longer.

Fifth Interrogatory.—What has been the effect of the introduction of the machines in your business as to the wages paid for the work, and as to the amount of labor per day which is necessary for earning such wages, as compared with the labor required by hand?

A. The same girls that we formerly paid three dollars a week to, we now pay five and six, each girl probably accomplishing four times the work, working two hours less per day.

Sixth Interrogatory.—How has the introduction of the machines in your business affected generally the health and comfort of the persons in your employ, and if you can speak more generally of its effect outside of your own business, from your experience or observation, will you do so?

A. My own girls, who were formerly in such poor health from steady application to the needle, that they would have been compelled to give up hand sewing, are now using the machines, and are perfectly healthy and happy. Outside of that, as far as my observation has carried me, I find that it is so generally.

Seventh Interrogatory.—Has the introduction of the machines had the effect of excluding any class of sewing labor from profitable employment?

A. To the contrary, girls that have been compelled to earn a living in kitchens and other menial work, not being able to learn hand sewing, are now making a good living by the machine.

MRS. M. O. BUSH.

City and County of New-York, ss.:—On this 1st day of August, 1860, before me personally came the above-named Mary O. Bush, and made oath that the foregoing deposition, by her subscribed, contains the whole truth and nothing but the truth. The said deposition is taken at the request of Elias Howe, Jr., to be used on his application for an extension of his patent of September 10th, 1846, before the Commissioner of Patents of the United States, at his office, on the 13th day of August, 1860. The parties opposing were duly notified, as appears by the notices hereto annexed, and attended by Samuel Blatchford, Esq.

Certified by me,

HORACE ANDREWS,

Commissioner of Deeds.

WILLIAM H. JEFFERS, being duly sworn, doth depose and say, in answer to interrogatories proposed to him by Causten Browne, Esq., of counsel for Elias Howe, Jr., as follows:

First Interrogatory.—What is your name, age, residence and occupation, and how long have you been engaged in the business?

A. William H. Jeffers; I am 40 years of age; 573 Broadway. My business is that of ladies' shoemaker; have been in that business from 1833, including my apprenticeship.

Second Interrogatory.—Do you, or those who sew for you in that business, use sewing machines in the work, and whose make, and how many do you think are used by those engaged in work for you?

A. Those who sew for me use principally A. B. Howe's machines. I believe there is one of Singer's used in one of the houses. I think either ten or eleven are used in all.

Third Interrogatory.—Did you introduce sewing machines into your business when they first came into use in the shoe manufacture; and if not, why not, and how long did you decline to use them; and why did you, finally, come into their use?

A. I did not introduce them into my business when they first came into use in the shoe manufacture. There was much difficulty with them in fixing the tension of the thread, and breaking and snapping off the thread, and ripping, &c. I declined using them for four or five years, and then I introduced them on children's shoes, because I could not get as much work as I wanted done, and done well, without machines. I introduced them about five years ago.

Fourth Interrogatory.—What turned out to be the difficulty with the machines upon which your first and unsatisfactory work was done?

A. The trouble was the misunderstanding of the working of the machine by the operatives, and there is much misunderstanding of the same kind now. There are few that thoroughly understand it now.

Fifth Interrogatory.—How many hands' work is done in your business by one of the sewing machines that your employées now have in use?

A. I think from ten to twelve; by the assistance of a series of persons preparing the work for it, and keeping the machine at work all the time.

Sixth Interrogatory.—How well is the work done as compared with the same work done by hand?

A. Equally good; superior with those who thoroughly understand the machines. In point of fact, I would put the shutters on to the store if I had to go back to hand work again.

W. H. JEFFERS.

City and County of New-York, ss.:—On this 1st day of August, 1860, before me personally came the above-named William H. Jeffers, and made oath that the foregoing deposition, by him subscribed, contains the whole truth and nothing but the truth.

The said deposition is taken at the request of Elias Howe, Jr., to be used upon the hearing of his application for an extension of his patent of September 10th, 1846, before the Commissioner of Patents at his office, on the 13th day of August, 1860.

The parties opposing were duly notified, as appears by the original notices hereto annexed, and attended by Samuel Blatchford, Esq.

Certified by me,

HORACE ANDREWS,
Comm'r of Deeds.

Wednesday, August 1st, 1860.

Mr. Keller present on behalf of the applicant, Elias Howe, Jr. Mr. Blatchford present on behalf of the opponents, George B. Sloat and Williams & Orvis.

HARVEY WATERS, being duly sworn, deposes and says, in answer to interrogatories proposed to him by Charles M. Keller, Esq., counsel for Elias Howe, Jr., the applicant:

First Interrogatory.—What is your name, age, residence and occupation?

A. Harvey Waters; age, 56 years; reside in Massachusetts, about forty miles from Boston, in the County of Worcester and town of North Bridge, and am engaged in the manufacture of scythes. I am by trade and by profession a machinist.

Second Interrogatory.—State what have been your opportunities of acquiring a knowledge of the art of sewing seams by machinery, and the history of inventions for that purpose?

A. I first had my attention called to this subject some-

where about the year 1850 or 1851, upon the first trial at law of the patent granted to Elias Howe, Jr., September 10th, 1846, and from that time to the present I have had frequent occasions to examine into the subject, having been engaged in nearly all the suits touching this patent, and also the patents of Grover & Baker, Wheeler & Wilson, and in some of the suits of I. M. Singer & Co., which have been tried since the first trial of Howe's patent, before referred to, and in this experience have had occasion to examine a large number of American patents for sewing machines, or parts of sewing machines; and also have had occasion to examine the patents of various foreign machines which have been introduced on these trials, for the purpose of narrowing down the inventions of Howe and other subsequent inventors.

Third Interrogatory.—So far as your investigations have furnished you with information, by whose invention has the art of sewing seams by machinery been practically introduced to the public?

A. By the invention of Elias Howe, Jr., as set out in his patent of September 10, 1846.

Fourth Interrogatory.—Will you state what, in your opinion, are the characteristic features of the Howe sewing machine described and represented in his patent of September 10, 1846?

A. They are the stitching apparatus, the holding apparatus and the feeding apparatus, acting conjointly for the purpose of forming a seam, mainly in the manufacture of garments, so as to be able to sew seams either straight or curved. The stitch proper of Howe's machine was new with him as far as I know, and is formed of two threads, one on one side of the cloth and the other on the other side of the cloth, but interlocking with each other within the body of the cloth. This stitch is formed by means of an eye-pointed needle carrying a thread for one side of the cloth, and a shuttle carrying also a thread for the other side of the cloth; the needle being used to pass its thread in a loop through the cloth, and there opening its loop, while the shuttle passes its thread through

that loop, and then, by the conjoint action of the feed, presenting a new position in the cloth for a second introduction of the needle, and a second passing of the shuttle through the loop, when, by the conjoint action of the holding surfaces, the lifting-pin, the clipping-piece and needle, the stitch is drawn taught, so that the interlocking of the threads shall be within the body of the cloth. This manner of forming the stitch and tightening it was new and peculiar in this machine, as far as I know; and as adjuncts to this, for the purpose of forming a seam, the baster-plate and feeding apparatus are all new. This baster-plate, being of thin metal, could be bent to any required form, and when the work to be sewed was placed or impaled upon it, and introduced with it into the machine, the stitches were formed into a seam by the automatic progress thereof, following such line of curvature as was indicated by the baster-plate or rectilinear line, if so indicated by the baster-plate; the whole machine being so organized that all those parts which go to act in conjunction with the stitching and feeding apparatus, to support the cloth or material to be sewed against the thrust and retraction of the needle, and against the action of the needle and other parts in tightening of the stitch, were local with the needle and other adjuncts of the machine, all except the baster-plate. And, altogether, this machine was peculiar, as being the first automatic sewing machine proper, ever brought to practical use, as far as my knowledge extends.

Fifth Interrogatory.—Have you examined the specifications and drawings of the said Howe patent; and if yea, state whether or not a competent machinist could therefrom, and without invention on his part, construct a practical machine for sewing?

A. I have examined that patent often; the description is full and clear, and any competent mechanic could construct an operating machine from it.

Sixth Interrogatory.—Are you acquainted with what is described in an English patent, granted to John Duncan, May 30th, 1804; and if yea, state what relation it bears to the art of sewing seams by machinery, and whether you

find in it any of the characteristic features which you have stated belongs to the Howe machine?

A. I am acquainted with the description of that patent. I see no relation between the machine there described and a sewing machine. That machine of Duncan's was for the purpose of embroidering; it never had any value for that, except from the fact that a gang or series of embroidering apparatus could be worked by one operative. If only one set of embroidering apparatus could have been used at a time in that machine, it would have been slower in its action than what could have been accomplished by hand. And besides, it never made a seam at all; and it never had any means of holding and presenting the material to be sewed, according to the wants in the manufacture of garments, so that no useful knowledge could have been obtained from that invention, going to show how to construct the sewing machine of Howe; nor do I know of any part or thing going to make up that contrivance of Duncan's, that goes into the contrivance of Howe.

Seventh Interrogatory.—Are you familiar with what is said to be described in Brewster's Encyclopedia as improvements or additions to a machine like Duncan's; and if yea, state what relation that bears to the art of sewing seams by machinery, and whether you find in it any of the characteristic features of the Howe machine, or any of the sewing machines now known and used, to your knowledge?

A. I am familiar with that description. I see nothing in it having relation to Howe's machine, except the eye-pointed needle there described. In the fact, *per se*, of its being an eye-pointed needle, it is like Howe's needle; and in the use of the same it carries a loop of thread through the cloth, and so does Howe's; but the method of opening the loop is essentially and entirely different from Howe's method. There are some sewing machines using a single thread, where the method of opening the loop is the same as in this description, as well as the method of carrying the loop of thread through the cloth, which I have said was like Howe's. I do not now recollect of any other similarities between this modified ma-

chine of Duncan's and any of the sewing machines now in use.

Eighth Interrogatory.—Would the parts that you have stated in your last answer, you find in that machine of Duncan's modified, in common with Howe's and some of the single-thread sewing machines you have seen, teach a mechanic how to construct a machine which would be capable of sewing a seam in cloth or other material in making garments?

A. Certainly not.

Ninth Interrogatory.—For what reasons?

A. Because it don't give you the other parts to act conjointly with them, such as could answer the purpose inquired about.

Tenth Interrogatory.—Are you familiar with the machine of Thimonier of July 17th, 1830; and if yea, state what relation that bears to the art of sewing seams by machinery?

A. I am acquainted with that machine, and as a machine its relation to the Art of Sewing Seams by Machinery is exceeding small. It is not an automatic sewing machine, for it has no feeding mechanism; it has no means of tightening the stitch properly; it has no needle, but uses the crochet hook, which hook, when used to puncture the cloth, works badly. The hook, in order to puncture easily, should be small; in order to withdraw easily, the hook or barb should be very small; and, again, the hook or barb, in order to catch the thread from below, should be pretty large, so that in consequence of this antagonism, a compromise has to be made to meet both wants as well as may be. This difficulty renders this kind of looping apparatus nearly useless, as well as I know, and nothing at all like it is now used except in material of considerable firmness, such as leather of considerable thickness, where a hook is used for drawing the loop through a hole made by an awl, acting in conjunction with it. In the bare fact of its having local support for the cloth to sustain it against the thrust and retreat of the looping apparatus, it is like Howe's machine.

Eleventh Interrogatory.—Are you familiar with the patent granted to John J. Greenough, February 21st, 1842, and re-issued February 12th, 1846, and with the original application for said patent; and if yea, state whether you find therein any of the essential characteristic features of the Howe sewing machine, or any of the machines in general use, to your knowledge?

A. I know the description of Greenough in that patent very well. It was a contrivance intended to sew a common harness stitch, but it was not good for any thing for that; there was nothing in it common to the Howe sewing machine, or to the sewing machines of the present day.

Twelfth Interrogatory.—Are you acquainted with the English patent granted to Newton & Archibald, May 4th, 1841; and if yea, state whether you find any, and if so, which of the characteristic features of the Howe sewing machine, or any of the sewing machines in general use?

A. I am acquainted with that patent. It is a machine for embroidering gloves, the embroidering apparatus working in gangs. There are none of the characteristics of the Howe sewing machine in that embroidering machine, except in the single fact that it has an eye-pointed needle; nor do I know of any characteristic in it of any of the sewing machines now in use, except in the fact that it carries a loop of thread through the material by using an eye-pointed needle, in conjunction with an apparatus for treating the loops upon the other side of the material so as to concatenate the thread into a chain there.

Thirteenth Interrogatory.—Could a mechanic, from the Newton & Archibald patent, construct a machine which could be practically used for sewing seams in making garments?

A. He could not.

Fourteenth Interrogatory.—Are you acquainted with the English patent granted to Fisher & Gibbons, as enrolled on the 7th day of June, 1845; and if yea, state the purpose of the machines therein described, and state whether you find

therein any, and if so, which of the characteristic features of the Howe sewing machine, or of any of the sewing machines?

A. I am acquainted with that patent. The machines there described are for embroidering, working the embroidering apparatus in gangs, and only useful in that way. The stitch used in the embroidering is in the mere interlocking of the threads, substantially the same as Howe's. I believe this is so in both modifications of the stitching apparatus, one of the machines using a shuttle with the needle, so as to interlock the threads precisely the same as Howe's; the other machine using a non-perforating eye-pointed instrument in place of a shuttle, and looping its thread through the loop of the other thread without passing the end through the loop as with a shuttle, thus making that modification of the Howe stitch which the Grover & Baker machine makes. But neither of these machines have any apparatus suitable for tightening the stitch as is usually done in sewing machines; nor have they any suitable apparatus for feeding the cloth or other material to be sewn in the manufacture of garments, or for holding it and presenting it to the action of the stitching apparatus. Moreover, the stitching apparatus which goes to the making of the Howe stitch proper in one of these machines, differs from Howe's in two other important particulars; the needle is bent to such a form as requires that the harness frame or the needle frame should have a "shogging" motion, in order to accommodate this crook. This is done so as to present the loop of thread so broad that the ribbon shuttle used in the machine may take into and pass through the loop; whereas, in the Howe machine the loop is formed or opened mainly by the retreat of the needle after it carries its thread through the cloth, thus opening it so that the peculiar shuttle of Howe, which has its points in a line or nearly so with one of its sides, may enter the loop and force its passage through it. These differences are essential in the use of sewing machines, and, as far as I know, all the shuttle sewing machines use the arrangement which I have described as being peculiar to Howe.

Fifteenth Interrogatory.—In making your answer to the

fourth interrogatory, wherein you have pointed out the novel characteristic features of the Howe machine, did you make such answer in view of and with full knowledge of the several machines, patents or descriptions of prior date to Howe's patent, to which your attention has since been called during this examination?

A. Yes, I did; but with the understanding that Howe's invention was made before the description of the Fisher & Gibbons machine was published in England. Otherwise my opinion would be modified as to the invention of the Howe stitch, but there would be no modification of my opinion as to the fact of Howe having been the first person to invent an automatic sewing machine, such as could be used in the manufacture of garments, even although the Fisher & Gibbons contrivances had been known to the public at the time of Howe's invention.

Sixteenth Interrogatory.—Do, or do not, the sewing machines now in general use, use the novel characteristic features of the Howe machine, as they have been defined by you in your answer to the fourth interrogatory?

A. They do, all of them, as far as I now recollect, some using all or nearly all of Howe's novelties, and all of them using a substantial and material part thereof.

Seventeenth Interrogatory.—Look at the old pieces marked Exhibit A., R. E. Stillwell, and state whether they would suggest to the mind of a machinist the principle, structure and organization of a sewing machine?

A. I think they would not. In making this answer, I understand the question to contemplate a machinist having full knowledge of all the machines known to the public at the time of the invention of Howe to which my attention has been called in this examination, and not as to a machinist having full knowledge of all that has been done in the matter of sewing machines at the date of this examination. It is easy enough for me now to see that this machine was intended as a sewing machine; but taking it as it is, it is also easy enough to see that it never could have been good for any

thing for that purpose. And besides, there are many things about it which I have never been able to understand, after a long acquaintance with it, and after having seen one or two machines which were said to have been restorations of this.

Eighteenth Interrogatory.—When, and under what circumstances, did you first see the said Exhibit?

A. I first saw this Exhibit in 1851 or 1852; I think, on the trial at law of Howe's patent, in the Circuit Court at Boston, being the trial I have referred to in the course of this examination, as the first trial at law of Howe's patent.

Nineteenth Interrogatory.—Is there or not in Howe's patent, described or represented, a means for producing tension on the shuttle thread; and if yea, state whether such means be defective or practical?

A. There is a means described which is fully practical.

HARVEY WATERS.

Subscribed and sworn to before me, }
this 1st day of August, 1860. }

R. E. STILLWELL,

U. S. Com'r.

Mr. Blatchford waives the cross-examination of this witness.

EDWARD S. RENWICK, being duly sworn, deposes and says, in answer to interrogatories proposed to him by Charles M. Keller, Esq., on behalf of the applicant, as follows:

First Interrogatory.—What is your name, age, residence and occupation?

A. Edward S. Renwick; age, 37 years; reside in the City of New-York; and am a solicitor of patents, and act as an expert in cases.

Second Interrogatory.—State what have been your opportunities for acquiring knowledge of the art of sewing seams

by machinery, and of the history of inventions for that purpose?

A. I was engaged, in 1851, to solicit a patent for a sewing machine, and since that date have examined and operated with a large number of the sewing machines in general use; have examined a great number of patents granted in this country and in Europe for sewing machines, and, for the last three years, have been employed as expert in almost every sewing machine suit that has been tried in this country.

Third Interrogatory.—So far as your investigations have furnished you with information, by whose invention has the art of sewing seams by machinery been practically introduced to the public?

A. By that of Elias Howe, Jr., the patent for which is dated September 10, 1846.

Fourth Interrogatory.—Have you examined the specification and drawings of that patent; and if yea, state whether from them, and without the exercise of invention, a competent mechanic could construct a practically useful machine for sewing seams in the manufacture of clothing?

A. I have frequently examined the specification and drawings referred to in the question, and have no doubt that a competent mechanic could from them construct a practically useful machine, for sewing the seams of garments without any invention on his part.

Fifth Interrogatory.—What, in your opinion, are the characteristic features of that machine, as described in the said patent of September 10, 1846?

A. The characteristic features of the said machine are the holding surfaces, by means of which the material to be sewed is held in a proper position with reference to the moving members which act upon it; the stitch-forming mechanism, by which the thread is inserted through the cloth, interlocked and drawn tight, while held between the surfaces, and the feeding mechanism, which moves the cloth forward between the holding surfaces with a regular intermittent movement,

the whole combined in such manner that the feed takes place at times when the stitch-forming mechanism is not inserted in the cloth; and that the holding surfaces sustain the cloth against the perforation of the portion of the stitch-forming mechanism which inserts the thread, and against its retraction, when moving out of the cloth.

Sixth Interrogatory.—Is it essential to the successful working of a sewing machine that it should have means for controlling and regulating the tension of the thread; and if yea, state whether you find any mechanism for such purpose in the said Howe patent?

A. So far as I know, it is absolutely essential, as among all the varieties of sewing machines which I have examined I have not seen one without a device for this purpose; there are devices for this purpose described in the said Howe patent, and when, in my preceding answer, I spoke of the tightening of the thread while the cloth is held between the surfaces, I referred to tension apparatus for the thread as a constituent part of the stitch-forming mechanism.

Seventh Interrogatory.—Do or do not the sewing machines now in general use employ the characteristic features of the Howe machine, as you have defined them?

A. So far as I have examined them, they all do.

Eighth Interrogatory.—Are you acquainted with the English patent granted to John Duncan, May 30th, 1804, and also with the description of a like nature including suggested additions or modifications contained in the fifth volume of Brewster's Encyclopedia, page 588; and if yea, state what such machines are for, and whether you find therein the description of any machinery capable of sewing seams for making garments?

A. I am acquainted with the English patent of Duncan and with the description in Brewster's Encyclopedia referred to in the question. The machines therein described are for the purpose of making a kind of embroidery called tambour

work, upon cloth of loose texture, by means of a gang or series of embroidery apparatus which operate simultaneously to produce a series of ornamental figures across the cloth. I do not find either in the patent or in the description in the Encyclopedia any description of any machinery capable of sewing seams for making garments, although it is possible that if some of the parts of the said machinery were detached from the remainder and combined with parts which are not described or suggested either in the patent or in the description of the Encyclopedia, they might be made use of for the purpose of sewing seams in garments, just as any well known mechanical elements may be made use of to construct newly invented machines, performing purposes which the machines of which they have heretofore formed part were not designed for or capable of performing?

Ninth Interrogatory.—Do you find in said Duncan patent, or in the said article in Brewster's Encyclopedia, any of the characteristic features which you have stated you find in Howe's patent, or in the sewing machines in general use?

A. I do not.

Tenth Interrogatory.—Are you familiar with the Thimonier machine of July 17, 1830; and if yea, state what it is for, what are its characteristic features, and whether you find therein any of the characteristic features which you have pointed out as constituting the Howe invention, and which are found in the sewing machines now in general use?

A. I am familiar with the Thimonier machine referred to in the question. It is a machine for supporting cloth, for puncturing it, for drawing a loop of thread through the puncture or hole, and for holding this loop in a position to be entered by the puncturing instrument; it is not an automatic sewing machine, as it has no mechanism whatever for moving forward the cloth so as to cause stitches to be produced; on the contrary, the machine would not make a single stitch unless the cloth were moved at intervals by the hand of an operator. The characteristic features of the machine are a table to support the cloth; a pointed or crotchet hook to per-

forate the cloth and draw a loop of thread through it; an instrument to apply the thread to the crotchet hooks, and an instrument to hold the loop of thread upon the cloth so that it may be entered by the hook or puncturing instrument. I do not find in the said machine the characteristic features which I have before stated are found in the Howe machine, and which are found in all sewing machines now in general use with which I am acquainted.

Adjourned to 10 A. M. the second of August, 1860.

Thursday, August 2d, 1860.

Mr. Keller present, on behalf of the applicant, Elias Howe, Jr.

Mr. Blatchford present, on behalf of the opponents, George B. Sloat and Williams & Orvis.

Eleventh Interrogatory.—What is the difference, if any, in the character and quality of the seam or series of stitches made by the Thimonier machine as compared with the Howe patent?

A. The seam made by means of the Thimonier machine is a single-thread chain, which can be readily raveled out, whenever the thread becomes accidentally broken, by a slight pull upon the end of the thread; while the stitch made by the Howe machine is composed of two threads, firmly interlocked in the cloth, which cannot be raveled out, and requires the cutting of the thread, at very short intervals, in order that it may be removed from the cloth when that operation becomes necessary.

Twelfth Interrogatory.—How is it as to the regularity of the stitches as made by the Thimonier machine, as compared with the Howe machine, there being an automatic feed in the Howe machine and none in the Thimonier machine?

A. The regularity of the stitches made by the aid of the Thimonier machine depends upon the skill of the operator who moves the cloth, and is necessarily imperfect. In the Howe

machine, on the contrary, the movement of the cloth by the regular action of positive mechanism renders the stitching perfectly uniform.

Thirteenth Interrogatory.—In view of the form of the instrument in the Thimonier machine which holds the cloth to the table at certain intervals, could the cloth be fed by a mechanism, whilst that instrument makes pressure in the cloth, assuming that a feeding mechanism be combined with that machine?

A. It could not be for two reasons. First, because the shape of the lower end of that instrument is such, that it would greatly impede if not wholly prevent the movements of the cloth when that instrument is borne upon it by the spring used for that purpose in the Thimonier machine; and secondly, because the intervals during which that instrument is in contact with the cloth are the periods of time in which the cloth must remain stationary for the entrance and retraction of the crochet-hook, while the instrument is withdrawn from the cloth at the periods of time in which feeding of the cloth must be effected.

Fourteenth Interrogatory.—Are you familiar with the patent granted to John J. Greenough, February 21st, 1842, and re-issued February 12th, 1856, and with the original application for the said patent; and if yea, state whether you find therein any of the characteristic features of the Howe sewing machine, and of any of the sewing machines, to your knowledge, in general use.

A. I have carefully examined certified copies of the original and re-issued patents referred to in the question. I do not find therein any of the characteristics of the Howe machine, nor, so far as my knowledge extends, a single feature which is in use in the Howe machine or in any other sewing machine in general use with which I am acquainted. The same is true of the application, a copy of which I have examined.

Fifteenth Interrogatory.—From your attention to that passage of the Greenough application beginning with the words,

“this clamp may be dispensed with,” and ending with the words, “on the lower end of the vertical journal of one or both of the rollers,” and state what you understand by that part of the description, and whether with the rollers so substituted for the clamp, the machine would have suitable means for controlling the material to be sewed?

A. The language of the first and last portions of the passage referred to are inconsistent with each other, and with the preceding description in the application; as horizontal rollers, by which I understand rollers with horizontal barrels and axes could not be applied in that machine to feed the material past the piercing awl and stitching apparatus. The language can only be explained by supposing that vertical rollers were intended; and if such rollers were placed at the points where the needles are drawn through, and the clamps dispensed with, as suggested in the passage, there would be no means in the machine for controlling the material at the place where it is to be pierced by the awl; moreover, the rollers could not be placed close enough to the points at which the needles act on the material to exercise any efficient control upon the material for stitching purposes, because they would then be in the way of the pincers which move the needles.

Sixteenth Interrogatory.—Are you acquainted with the English patent granted to Newton & Archibold, May 4th, 1841, and if yea, state whether you find therein any, and if so, which of the characteristic features of the Howe sewing machine, and any of the sewing machines, to your knowledge, in general use?

A. I am acquainted with the patent referred to in the question. I do not find in the said patent any of the characteristic features of the Howe sewing machine, and any of the sewing machines in general use, although I do find parts of mechanism which, if detached from the remainder and combined with other mechanical elements, so as to form new and different combinations from those existing in the Newton & Archibold machine, would make machines having character-

istic features like Howe's and other machines in general use.

Seventeenth Interrogatory.—Was the said machine intended for sewing seams for the union of two or more thicknesses of cloth or other material, and if not, whether a good mechanic could, from that patent, and without invention, make a machine which could be practically used for sewing seams to make garments?

A. The Newton & Archibold machine was intended for producing ornamental embroidery upon single thicknesses of the backs of a number of gloves simultaneously, or single thicknesses of a number of pieces of material of which gloves were to be made, and not for sewing seams, or for the union of two or more thicknesses of cloth or other material, in any manner whatever. In my opinion a good mechanic could not, from that patent, make a machine which could be practically used for sewing seams to make garments, without the exercise of inventive faculties of a very high order.

Eighteenth Interrogatory.—Are you acquainted with the English patent granted to Fisher & Gibbons, enrolled on the 7th day of June, 1845; and if yea, state the purpose of the machines therein described, and whether you find therein any, and if so, which of the characteristic features of the Howe sewing machine, and of any of the sewing machines, to your knowledge, in general use?

A. I am acquainted with the Fisher & Gibbons patent referred to in the question. The purpose of the machine described therein is to produce ornamental figures or designs on lace, or net or other fabrics, by machinery, and the machines are of the same general class as the Duncan machine, differing from the latter mainly in the peculiar construction of the embroidering apparatus, and in the use of Jacquard motions in place of pattern wheels for moving the frame upon which the goods are stretched. I do not find therein any of the characteristic features of the Howe sewing machine and of the sewing machines in general use, although I find apparatus for carrying and interlocking threads, which,

if detached from the remainder of the machine, has a resemblance to the stitching apparatus of Howe's and other sewing machines with which I am acquainted.

Nineteenth Interrogatory.—Could a competent mechanic from that patent, and without the exercise of invention, construct a practically useful machine for sewing seams to make garments?

A. He could not.

Twentieth Interrogatory.—Are you acquainted with the patents granted in England to James Winter, February 20th, 1807, and December 19th, 1821, stated by the remonstrants to be for improvements in sewing machines; and if yea, state what said patents are for, and what they describe, and whether you find in either of them any of the characteristic features of the Howe sewing machine, and of any of the sewing machines, to your knowledge, in public use?

A. I am well acquainted with the two patents referred to in the question; they are both for stationary clamps, similar to saddlers' clamps, for the purpose of holding gloves for hand sewing; both patents describe clamps, and what are termed indexes, the latter being grooved immovable lips for the clamps for the purpose of guiding the points of the needles moved by the operators. They have no resemblance whatever to any sewing machine or any part of any sewing machine of Howe or any other person in use, so far as I know.

Twenty-first Interrogatory.—Is there, or not, described in Howe's patent a means for producing tension on the shuttle-thread; and if yea, state whether such means be defective or practical?

A. Two means are described in Howe's patent for producing tension upon the shuttle-thread, and both of them are efficient and practical.

Twenty-second Interrogatory.—Look at the old pieces marked Exhibit A., R. E. Stillwell, and state whether they

would suggest to the mind of a machinist the principle, structure and organization of a sewing machine?

A. They would not; nor do they suggest to my mind the principle, structure and organization of a practical machine for any purpose whatever.

Twenty-third Interrogatory.—Have you had any, and if so, what opportunity of becoming acquainted with the manufactories of Wheeler & Wilson, Grover & Baker and I. M. Singer & Co. for the manufacture of sewing machines; and if yea, state what are their means for supplying the public with sewing machines, and what the quality of the machines made by them?

A. I have not been in the manufactory of Wheeler & Wilson. I have frequently examined the manufactory of Grover & Baker, and have examined that of I. M. Singer & Co. on two occasions. The last two manufactories are furnished with machinery and tools of the best description for the purpose of making sewing machines, and are of sufficient capacity to manufacture a much larger number of sewing machines than was in process of manufacture on the various occasions when I have visited the manufactories. The machines made by all three parties are of the best quality.

Adjourned to 2 P. M. this day.

Twenty-fourth Interrogatory.—Have you made any investigations with the view to estimate the value to the public of the sewing machine art, as it was heretofore and is now practiced in the United States; and if yea, state what, in your opinion, is such value to the public?

A. I have made investigations to ascertain the number of sewing machines in use; the quantity of work done by the machines, when compared with hand labor, and its quality when compared with hand work; and also the different purposes to which it is applicable. These investigations have been partly effected by my own efforts, and have been, in part, derived from the investigations of others, in whom I have confi-

dence. The value of the art of sewing seams by machinery to the public is many millions of dollars, in my opinion; and I think that the public could afford to pay at least one hundred and fifty millions of dollars, rather than be deprived of the advantages derived from the art.

Twenty-fifth Interrogatory.—What proportion, if any, of this value do you attribute to the invention of Elias Howe, Jr., secured in his said patent of September 10, 1846?

A. I consider that Mr. Howe's invention, as set forth in the patent referred to, is the basis upon which all subsequent improvements in sewing machines have been built; and although a great multitude of inventions have been made since the date of his patent in the art of sewing seams by machinery, but a small number of them are of such great practical value as to be of leading importance in the construction of a good practical sewing machine. In view of this fact, I am of opinion that one half of the estimated value of the art to the public is due to Elias Howe, Jr.

In answer to cross-interrogatories, proposed to him by Samuel Blatchford, Esq., counsel for the opponents, he says, as follows:

First Cross-Interrogatory.—What improvements or inventions, now used in sewing machines, introduced since the date of Howe's patent, are those which you referred to, or had in your mind in your answer to the twenty-fifth interrogatory, as being of leading importance in the construction of a good practical sewing machine of the present day, please enumerate them, and state which, according to your information, are patented, and which not patented, and, if patented, by what patents?

A. When I used the term, a good practical sewing machine, I meant a sewing machine of the most modern pattern, and the inventions that I referred to are principally those set forth in the feed patents of A. B. Wilson and Fitzgerald, assignee of Wilson, the table machinery patents of A. B. Wilson,

the spring presser-foot patented to I. M. Singer, the thread controlling apparatus patented to I. M. Singer, and some one of several of the more modern thread tensions. When a machine is required to sew with the Grover & Baker stitch, the patents for mechanism for making this stitch, which are owned by the Grover & Baker Sewing Machine Company, as assignees of Grover & Baker, and Johnson, are of leading importance; and when a machine is required to sew seams upon the method described in the revolving hook machine patents granted to A. B. Wilson, those two patents are of leading importance. When a machine is required to stitch heavy leather, the wheel-feed, patented to I. M. Singer, and the awl-feed of Johnson, are of leading importance. There have also been some minor improvements in shuttles, which are very useful in shuttle machines.

Second Cross-Interrogatory.—Please state in regard to the several improvements, inventions and patents specified by you in your last answer, why you so consider them severally of leading importance?

A. Because, by their use, the working with a sewing machine is facilitated, and less time is required to enable operatives to learn to use the machines efficiently, and persons of a lower order of intelligence can learn to operate them successfully, and because the different methods of stitching introduced are advantageous for particular kinds of work; because, also, the introduction of some of the improvements I have referred to have diminished the cost of the sewing machine.

Third Cross-Interrogatory.—Please specify the particular advantages of the improvements set forth in the feed patents of Wilson & Fitzgerald, the table-machine patent, the Wilson, the Singer spring presser-foot, the Wilson revolving hook patents, and Singer's wheel-feed, which make them of leading importance.

A. The principal advantage resulting from the use of the Wilson & Fitzgerald feed patents is, that the cloth or material to be sewed is not attached to any part of the machine, and

can be turned freely at will by the operator to sew seams of any desired curvature, without interfering with the progressive motion of the material through the machine.

The principal advantage resulting from the use of the table machine patent of A. B. Wilson is, that the cloth or material to be sewed is laid in a horizontal position upon the table of the machine, and is maintained in its position by the force of gravity, without the necessity of attaching it to any part of the machine.

The principal advantage of the Singer spring presser-foot is, that its lower surface maintains the same relation to the cloth or material being sewed, whether these be thick or thin.

The principal advantage resulting from the use of the Wheeler & Wilson revolving hook patents are, the speed at which the machine can be run, the appearance of the stitching when first made, and the facility with which the lower thread can be wound upon the bobbin and applied to the machine.

The Singer wheel-feed patent, which is a modification of the A. B. Wilson feed, is advantageous for these cases, where, from the nature of the material to be sewed, great strength is required in the feeding mechanism.

Fourth Cross-Interrogatory.—What have you found to be the average speed of the best sewing machines at present made?

A. The speed at which a good sewing machine can be run depends upon the nature of the work and the skill of the operator. I should say that a speed of 300 stitches a minute is a fair average with a good operator.

EDWARD S. RENWICK.

Subscribed and sworn to before me, }
this 2d day of August, 1860. }

R. E. STILWELL,

U. S. Com'r.

New-York, July 31, 1860.

Pursuant to adjournment last noted, Causten Browne, Esq., of counsel for said Howe, and Samuel Blatchford, Esq., of counsel for opponents, appeared before me, and the examination of witnesses on the part of said Howe was then continued, as follows :

JAMES MCCALL, being duly sworn, doth depose and say, in answer to interrogatories proposed to him by Causten Browne, Esq., of counsel for Elias Howe, Jr., as follows :

First Interrogatory.—What is your name, age, residence and occupation ?

A. James McCall ; age, 32 ; residence, 188 Fulton-street ; occupation, at present, selling machine silk, and was formerly in the clothing business for fifteen years.

Second Interrogatory.—Have you given attention, and if so, to what extent, to the subject of the effect of the introduction of sewing machines upon the different branches of trade, and have you collected, and are you now engaged in collecting statistics of the saving which they effect therein, and what has led you to make such investigations ?

A. About four years ago I was favorably impressed against the sewing machines, being then a manufacturer of clothing ; one of my neighbors got a sewing machine, and I offered to try him a race with my hands against his machine. He did not take me up, and it confirmed my previous impressions against the machine. I afterwards bought a machine, almost for the purpose of trying the experiment whether the machines were profitable in my business or not, and after a few experiments, I concluded it was not profitable, and threw up the machine. After a time I took it up and tried it again. I instructed six of my workers to use the machine ; then I took those workers and gave them garments to make by hand, and the same garments to make by machine. The result came out contrary to my impression. Not being satisfied with this, I took four of the best hands and four papers, and had each worker's name written on the top of each paper.

Then I gave each worker a garment to make entirely by hand, requiring her to put down on her paper exactly the time she took to seam each seam and to make the different parts of the garment. Then she took the same kind of a garment, and was to make it exclusively by machine, as far as she could, and put the time down on the paper in the same way. These experiments were tried for nearly six months, and more or less for three years, until the result proved a saving of thirty-two per cent. on my workers. And also the same experiments by dress makers, shirt makers, &c. I hired them to do the same work that my own workers did, and the result of the saving was fifty per cent., that is, fifty per cent. on gentlemen's and ladies' dresses, and under clothes generally.

These experiments were conducted principally with the Amasa B. Howe machine, the Grover & Baker, Howe patent shuttle machine, and the Wheeler & Wilson machine. These experiments on the clothing were made for my own information, as a matter affecting my own interest in business, and with no view of being ever used in this or any other case.

The results of these experiments, in detail, are presented in the following tables :

Gentlemen's Ready Made Clothing.

	By machines.		By hand.	
	<i>Hours.</i>	<i>Minutes.</i>	<i>Hours.</i>	<i>Minutes.</i>
Common frock coat,.....	17	20	27	40
Fine frock coat,.....	21	25	35	16
Common business coat,.....	14	30	20	50
Fine business coat,.....	19	..	26	40
Common overcoat,.....	15	40	19	..
Fine overcoat,.....	23	10	31	20
Common pants,.....	5	46	8	50
Fine pants,.....	6	40	10	20
Summer pants,.....	4	48	7	50
Satin vest,.....	8	14	12	55
Cloth vest,.....	7	35	10	30
Linen vest,.....	3	44	7	18

Gentlemen's Shirts and Ladies' Clothing.

	By machines.		By hand.	
	<i>Hours.</i>	<i>Minutes.</i>	<i>Hours.</i>	<i>Minutes.</i>
Gentlemen's shirts,.....	3	10	15	20
Ladies' silk dress,.....	12	6	20	35
do. merino dress,.....	10	45	16	27
do. calico dress,.....	6	20	11	38
do. fine chemise,.....	5	1	15	37
do. merino skirt,.....	4	7	10	30
do. night dress,.....	7	10	16	15
do. drawers,.....	6	28	11	..
do. silk apron,.....	2	30	6	16
do. plain apron,.....	1	15	2	40
do. muslin skirt,.....	4	50	10	10

(Examination suspended.)

The further taking of testimony was then adjourned to August 2d, 1860, at 10 o'clock, A. M.

Attest,

HORACE ANDREWS,
Comm'r of Deeds.

New-York, August 2d, 1860.

Pursuant to adjournment last noted, Causten Browne, Esq., of counsel for said Howe, and Samuel Blatchford, Esq., of counsel for opponents, appeared, and the taking of testimony was proceeded with as follows :

(JAMES McCALL, being further examined by Causten Browne, Esq., of counsel for Elias Howe, Jr., testified as follows :)

Third Interrogatory.—Have you made any experiments, (and if so, will you state briefly at whose request and under what circumstances,) as to the number of stitches put into certain material for sewing by a hand sewer and by the machine respectively ; if so, will you present in tabular form, the result of such experiments ?

A. I made some experiments last week, at the request of Mr. Howe. The table which I present exhibits a fair average of the experiments I made. These experiments were continued, more or less, for a day and night.

I made similar experiments in regard to the number of stitches, some three years ago, and had them in tables which were afterwards lost, rendering it necessary to repeat the experiments.

I produce a table showing these results, upon different kinds of material, indicating abreast of each class of work, the machine upon which the sewing of such class of work was done.

Number of Stitches per minute by Hand and by Sewing Machine.

	<i>By Hand.</i>	<i>By Machine.</i>	<i>Name of Machine.</i>
Patent leather, fine stitching,	7	175	A. B. Howe.
Fitting ladies gaiters,	28	510	do.
Binding hats,	33	374	{ Grover & Baker, Howe Patent.
Stitching vamps of shoes, . . .	10	210	A. B. Howe.
Seaming fine cloth,	38	594	do.
Stitching fine linen,	23	640	Wheeler & Wilson.
do. satin,	24	520	A. B. Howe.
do. silk,	30	550	

Fourth Interrogatory.—What is the reason of the numerical difference between the amounts of saving of time in making certain parts of garments and the amount of stitching capable of being done in a given time?

A. There are many parts of the garment that cannot be sewed by machine, and that part which can, usually requires more time to fit it for the machine than it does for hand sewing.

Fifth Interrogatory.—Have you made any investigations in regard to the extent of certain departments of business

connected with sewing machines ; and if so, will you state what investigations you have made, and with what result?

A. I have made investigations in regard to spool-cotton, sewing machine silk, and sewing machine needles.

In the spool-cotton I find an increase, attributed to the sewing machine alone, of one million eight hundred thousand dollars annually. I mean attributed by the manufacturers of the spool cotton.

Of sewing machine silk there are about one million dollars worth made in the United States annually, averaging seven and a half dollars a pound.

There is about one thousand hands employed in the manufacture of sewing machine needles, and the profits accruing from the manufacture are about six thousand dollars a week.

These figures, as to spool-cotton and machine needles, embrace both the United States and foreign countries. By spool-cotton I mean that adapted to sewing machines.

Sixth Interrogatory.—Have you ascertained, and if so, will you state what proportion of the clothing business of the United States is done by the City of New-York?

A. New-York, so far as I could ascertain, does one-tenth of the clothing business of the United States.

And on his cross-examination, by Samuel Blatchford, Esq., counsel for opponents, as follows :

First Cross-Interrogatory.—Please state your experience as to the ease or difficulty with which men and women become, what you would call good, serviceable workers with sewing machines ; and as to the breakage of needles in the use of machines ; and as to the proportion of operatives on machines who are called by you first rate operatives, and as to the length of time required to become a first rate operative, if the person be of fair intelligence?

A. In my whole experience I never knew of an operator that was a good operator under three months. As to the breakage of needles, I always calculated that the needles sent with a machine, which are about a dozen, would last

about a week. Of forty operators that I know in my immediate sphere, all are fair or good workers, but none of them superior. They can all do what they want to do with the machines.

Second Cross-Interrogatory.—On an average, how long have the forty that you have referred to been working on the machines?

A. From four years to three months.

Third Cross-Interrogatory.—What is the cost of machine needles to the purchaser who buys them, say by the dozen at a time?

A. About a dollar a dozen, by the single one, or less than a dozen, the price is ten cents each.

And on his re-direct examination, by Causten Browne, Esq., as follows:

Seventh Interrogatory.—Have you ascertained the extent of the bag manufacture in the United States, and how far it is done by the sewing machines; if so, please state?

A. I find, upon a general investigation, that a girl and a machine can do the work of nine girls in making grocery bags for flour. There are four hundred hands employed in the United States making these bags by machine. There are one hundred and twenty thousand bags made per day.

JAMES MCCALL.

City and County of New-York, ss.:—On this 2d day of August, 1860, before me personally came the above-named James McCall, and made oath that the foregoing deposition by him subscribed, contains the whole truth and nothing but the truth.

The said deposition is taken at the request of Elias Howe, Jr., to be used upon the hearing of his application for an extension of his patent of September 10th, 1846; before the Commissioner of Patents of the United States, at his office, on the 13th day of August, 1860.

The parties opposing were duly notified, as appears by the original notices hereto annexed, and attended by Samuel Blatchford, Esq.

Certified by me,

HORACE ANDREWS,

Comm'r of Deeds.

JOHN J. BENSON, being duly sworn, doth depose and say, in answer to interrogatories proposed to him by Causten Browne, Esq., of counsel for Elias Howe, Jr., as follows :

First Interrogatory.—What is your name, age, residence and occupation ?

A. John J. Benson ; age, 33 ; residence, 310 Canal street ; occupation, cloak and mantilla manufacturer.

Second Interrogatory.—How long have you been in that business, and do you employ sewing machines in it, and how many, and of whose make ?

A. I have been in the business eighteen years. I employ sewing machines in the business ; four of Grover & Baker's and three of Singer's.

Third Interrogatory.—Are you acquainted with the extent of the mantilla and cloak trade in the City of New-York, and if so, will you state it, at a moderate estimate ?

A. I am acquainted with it. I should judge it was about three millions of dollars per annum.

Fourth Interrogatory.—What proportion of the mantilla and cloak manufacture, in the City of New-York, is done by machines ?

A. Fully one-third.

Fifth Interrogatory.—In that business, how many hand sewers will one machine do the work of, on the average ?

A. I should say, about six.

Sixth Interrogatory.—What is the quality of the work done by the machine, and does it give satisfaction ?

A. The quality is good ; and it does give satisfaction.

Seventh Interrogatory.—How good, as compared with hand sewing ?

A. Superior, altogether.

Eighth Interrogatory.—How valuable do you consider the machine to your business ; whether or not indispensable to carrying it on with practical success ?

A. It is almost indispensable. It has created a demand for business that could not be supplied without it.

Ninth Interrogatory.—What has been the effect of the introduction of the sewing machines in your business upon the demand for hand sewing ?

A. It has increased it, necessarily.

Tenth Interrogatory.—Why necessarily ?

A. It has cheapened the cost of producing the garments that we require ; and by thus cheapening them has increased the demand, which, consequently, must increase the supply. With the increase of machines there is also an increase of hand sewers to prepare the work for them, and also to do that part of the work which the machines cannot do.

Eleventh Interrogatory.—Has the use of machines in your business increased the amount of work put upon a garment, and is this increase a matter of ornament, or a matter of utility, or both ?

A. It has increased the quantity of work, both ornamental and useful.

Twelfth Interrogatory.—Are the wages paid for making such work, and the charge for it to the consumer, increased or diminished by the use of the machines ?

A. The wages for the work are increased. The cost to the consumer is not increased, but rather lessened.

Thirteenth Interrogatory.—How many sewing hands do

you employ in your business, and at what wages, on an average?

A. I employ about forty-eight or fifty. I am not a large dealer in the business. The wages will average four dollars a week, that is, to hand sewers, and six dollars to machine sewers. I employ seven on the machines.

Fourteenth Interrogatory.—When did you introduce machine sewing in your business?

A. I first introduced them about seven years ago in the business of Molyneux Bell, for whom I was then foreman. I first used the Grover & Baker machines. I believe I was the first to introduce sewing machines into the cloak and mantilla business.

Fifteenth Interrogatory.—Within your observation, how has the the use of the sewing machine in your business effected the health and comfort of sewing women?

A. Very favorably. As my girls prefer operating to sewing, my operatives are selected from the most sickly of my girls, whose health has much improved since they worked on the machines.

And on his cross-examination by Samuel Blatchford, Esq., counsel for opponents, as follows:

First Cross-Interrogatory.—In answer to the twelfth direct question, you state that the wages paid for making work in your business is increased, while the cost to the consumer is rather lessened. You do not mean to say that if you take two garments of exactly the same style, and require each to be made up in the same way, and to have the same amount of sewing put upon it, the one to be made by hand and the other to be made by a machine, that you would pay out less wages to the machine operative than to the hand sewer for doing the same quantity of sewing?

A. We should not pay less wages for it, but the work

would be done so much quicker, that we could afford to sell it for less than if done by hand.

JOHN J. BENSON.

City and County of New-York, ss. :—On this 2d day of August, 1860, before me personally came the above-named John J. Benson, and made oath that the foregoing deposition by him subscribed contains the whole truth and nothing but the truth.

The said deposition is taken at the request of Elias Howe, Jr., to be used upon the hearing of his application for an extension of his patent of September 10th, 1846, before the Commissioner of Patents of the United States, at his office, on the 13th day of August, 1860.

The parties opposing were duly notified, as appears by the original notices hereto annexed, and attended by Samuel Blatchford, Esq.

Certified by me,

HORACE ANDREWS,

Comm'r of Deeds.

EMMA SIMPSON, being sworn, doth depose and say, in answer to interrogatories proposed to her by Causten Browne, Esq., of counsel for Elias Howe, Jr., as follows :

First Interrogatory.—What is your name, age, residence and occupation ?

A. Emma Simpson ; aged thirty-nine ; residence, 78 McDougal street, and occupation, family sewing generally.

Second Interrogatory.—Do you use sewing machines in your business, and how many, and of what make, and how long have you used them, and did you formerly make your goods by hand ?

A. I do use sewing machines altogether. I have eight—Grover & Baker's. I formerly made my goods by hand for fifteen years. I have used machines now for about three years.

Third Interrogatory.—How many hands is one machine equal to in your business?

A. Somewhere about six.

Fourth Interrogatory.—What has been the effect of your introducing sewing machines into your business as to affording to your customers superior styles of garments at prices within their means?

A. I think that poor persons can be better clothed, and at much less expense than before the machines were introduced

Fifth Interrogatory.—Will you produce a dress made by the machine, and state the amount of stitching in it, and at what price such a dress is sold in your business, and what would be the value of it if made by hand, and the cost of the material, and how much of it was done by hand?

A. I produce a dress (Exhibit C.) made by one of my hands in my establishment, the skirt of which has over three hundred and forty yards of stitching. The material, aside from the embroidery, did not cost three dollars. The price is fifteen dollars. If made by hand, it could not be sold for thirty. It would be impossible to make the dress with such stitching as is done there by hand. I think only a few stitches of the dress were done by hand. The embroidery upon the dress was imported.

Sixth Interrogatory.—What has been the effect of the introduction of machines into your business as to enlarging the business, as to increasing or diminishing the demand for labor, and the amount which a good hand can make per week as compared with hand sewing, and generally, upon the health and comfort and prosperity of the sewing girls?

A. The introduction of the machines has enlarged my business. I think it increases the demand for labor by far. A girl by hand sewing, if she is a pretty good hand, can make from three to four dollars a week. That is the best. Now, on the machine, they can make from four to ten, or, you may say, twelve dollars.

With all the sewing girls with whom I have had to do, the

effect of the introduction of the machines has been very beneficial upon their health. I have a niece, who was a hand vestmaker, and in very bad health ; we thought she was in the consumption. She was obliged to work until ten o'clock at night. About two years ago, she got a machine, and now she can earn double the money, and leave off at six o'clock, and her health is very much improved.

EMMA SIMPSON.

City and County of New-York, ss.:—On this second day of August, 1860, before me personally came the above-named Emma Simpson, and made oath that the foregoing deposition, by her subscribed, contains the whole truth, and nothing but the truth.

The said deposition is taken at the request of Elias Howe, Jr., to be used upon the hearing of his application for an extension of his patent of September 10th, 1846, before the Commissioner of Patents of the United States, at his office, on the 13th day of August, 1860.

The parties opposing were duly notified, as appears by the original notices hereto annexed, and attended by Samuel Blatchford, Esq.

Certified by me,

HORACE ANDREWS,

Comm'r of Deeds.

MARGARET FARRON, being duly sworn, doth depose and say, in answer to interrogatories proposed to her by Joel Giles, Esq., of counsel for Elias Howe, Jr., as follows :

First Interrogatory.—What is your name, age, residence and occupation ?

A. Margaret Farron ; age, 28 ; residence, 114 West Nineteenth-street ; I work on sewing machines.

Second Interrogatory.—State for whom you work, and what kind of work you do with the sewing machines, and how long you have been so employed ?

A. I work for Grover & Baker, and do all kinds of family-sewing. I have been so employed for about twenty months past.

Third Interrogatory.—State whether you sewed by hand before you did with the machine, and what effect hand sewing had upon your health, and whether you could earn enough to support yourself and children, when you worked with the needle?

A. I did sew by hand before I sewed with the machine. The effect upon my health was very bad, and I was obliged to give it up. I could not earn enough with the needle to support myself and children. I could not earn more than two dollars a week at fine sewing.

Fourth Interrogatory.—State what effect the sewing with the machine has had upon your health, and what wages you make with the machine?

A. It has improved my health very much. I have not lost two weeks in twenty months for want of work or from ill health. I make five dollars a week, and by piece work could make more.

Fifth Interrogatory.—State the effect of machine sewing compared with hand-sewing, upon the eyes?

A. It has not injured mine in the least. I think hand-sewing is much more injurious to the eyes, because you have to watch more closely.

Sixth Interrogatory.—State how many hours you had to work a day with the needle to make two dollars a week, and how many you have to work with the machine to make five dollars a week?

A. I had to work from five o'clock in the morning to two or three o'clock the next morning, to make two dollars a week, by hand-sewing on fine work, which was the highest pay. On the machine I work from eight in the morning to six in the evening, ten hours a day.

Seventh Interrogatory.—State whether you consider the sewing machine of great benefit to needle women in all respects?

A. Yes, Sir, I do. The needle-women all tell me that it has not injured them any, because they have as much as they can do at basting. Needle-women now work only ten hours a day and get more wages than they did before the introduction of the machine.

Eighth Interrogatory.—State the work of how many will one machine do?

A. On very fine sewing it will do the work of four; on coarser sewing, more.

MARGARET FARRON.

City and County of New-York, ss.:—On this 2d day of August, 1860, before me personally came the above named Margaret Farron, and made oath that the foregoing deposition, by her subscribed, contains the whole truth and nothing but the truth.

The said deposition is taken at the request of Elias Howe, Jr., to be used upon the hearing of his application for an extension of his patent of September 10th, 1846, before the Commissioner of Patents of the United States, at his office, on the 13th day of August, 1860.

The parties opposing were duly notified, as appears by the original notices hereto annexed, and attended by Samuel Blatchford, Esq.

Certified by me,

HORACE ANDREWS,

Comm'r of Deeds.

WILLIAM JOHNSTON, being duly sworn, doth depose and say, in answer to interrogatories proposed to him by Joel Giles, Esq., of counsel for Elias Howe, Jr., as follows:

First Interrogatory.—What is your name, age, residence and occupation?

A. William Johnston; age, 32; residence, Williamsburgh; am a boot-fitter.

Second Interrogatory.—State whether you use sewing machines, how many, whose make, for what purpose and how long?

A. I do use them. A. B. Howe's make. Two of them. In stitching boot uppers. I have used them for six years.

Third Interrogatory.—State the effect of using the machine upon your eyes and health, compared with doing the same work by hand?

A. It has been of great benefit, for if I had been at work at hand work till this time I should have been blind.

Fourth Interrogatory.—State the quality of work you do with the machine?

A. It is only first class work that I have been doing ever since I got the machines. The machine work is now preferred by my customers to hand work.

Fifth Interrogatory.—How many hand-sewers is one machine equal to, on an average, in your work?

A. About ten.

Sixth Interrogatory.—If you have samples of your work, exhibit the same, to be marked by the Commissioner, as an exhibit connected with your deposition?

A. I produce two pair of boot uppers, sewed by me on Howe's machine. All the stitching and sewing was done by the machine.

(Marked Exhibit D., 7.)

WILLIAM JOHNSTON.

City and County of New-York, ss.:—On this 2d day of August, 1860, before me personally came the above named William Johnston, and made oath that the foregoing deposition, by him subscribed, contains the whole truth and nothing but the truth.

The said deposition is taken at the request of Elias Howe, Jr., to be used upon the hearing of his application for an extension of his patent of September 10th, 1846, before the Commissioner of Patents of the United States, at his office, on the 13th day of August, 1860.

The parties opposing were duly notified, as appears by the original notices, hereto annexed, and attended by Samuel Blatchford, Esq.

Certified by me,

HORACE ANDREWS,

Comm'r of Deeds.

BURTON E. CLARK, being duly sworn, doth depose and say, in answer to interrogatories proposed to him by Joel Giles, Esq., of counsel for Elias Howe, Jr., as follows :

First Interrogatory.—What is your name, age, residence and occupation.

A. Burton E. Clark; age is 27; residence, 500 Atlantic street, Brooklyn; manufacturer of bags; am a member of the firm of B. E. Clark & Co., of New-York, and of Hart, Asten & Co., of Chicago.

Second Interrogatory.—State whether you use sewing machines in your manufacture of bags; if so, how many, what kind, how long have you used them, and whether they work satisfactorily?

A. We use twenty-seven Grover & Baker sewing machines. We have used them for six years with perfect satisfaction.

Third Interrogatory.—State whether you use them constantly, or how otherwise?

A. We use them the whole time. We commenced with four, and are now using twenty-seven.

Fourth Interrogatory.—State the amount of bag business, and the number of your manufacture in any given time?

A. We shall turn out about five millions of bags this year.

I should think the extent of that business in New-York and vicinity was about two millions of dollars per annum.

Fifth Interrogatory.—How many hand bag sewers is one machine and a woman to run it, equal to?

A. I should say ten.

Sixth Interrogatory.—What advantage is there in being able to make many bags in a short time, in your business?

A. Because the nature of our business is, that people never know they want bags until the time comes to use them; and we can supply this demand, by the aid of the machines, in a short time, without being obliged to keep a large stock on hand.

Seventh Interrogatory.—State the variety of purposes, so far as you can, for which your bags are used?

A. By shippers of grain to foreign markets; by grain dealers, for the domestic trade; millers, flour dealers, grocers, salt, shot, provision dealers, for ham bags, &c., guano, artificial manures, mining purposes, wool sacks and a variety of other purposes.

Eighth Interrogatory.—State whether your girls, who use the sewing machines, are generally healthy or not, after they have used them for a long time?

A. We have girls working for us who have been using them for the past five years, and I don't think they have been sick a month, and they are as healthy as the girls in any other business I ever knew. I don't think the use of the sewing machines ever injured the health of a girl who was in proper health, but rather improved it, as it calls into use the muscles most needing exercise in females.

Ninth Interrogatory.—State what wages girls can earn with the machine, as compared with hand sewing in your business?

A. About three times as much, working the same hours.

Tenth Interrogatory.—State the result of your practical observation of the use of the sewing machine upon the condition of sewing women?

A. By giving them more wages for the time employed they are able to clothe themselves better, and have more time for improvement, which makes them better members of society. Our girls work ten hours a day.

BURTON E. CLARK.

City and County of New-York, ss.:—On this 2d day of August, 1860, before me personally came the above-named Burton E. Clark, and made oath that the foregoing deposition, by him subscribed, contains the whole truth and nothing but the truth.

The said deposition is taken at the request of Elias Howe, Jr., to be used upon the hearing of his application for an extension of his patent of September 10th, 1846, before the Commissioner of Patents of the United States, at his office, on the 13th day of August, 1860.

The parties opposing were duly notified, as appears by the original notices hereto annexed, and attended by Samuel Blatchford, Esq.

Certified by me,

HORACE ANDREWS,

Comm'r of Deeds.

The counsel for Elias Howe, Jr., offers in evidence an exemplified copy of a writ of injunction, dated March 26th, 1860, issued by the Circuit Court of the United States for the first Circuit, in favor of Elias Howe, Jr., against Albert Morton and others.

(Marked Exhibit E.)

Also an exemplified copy of a decree, dated November 7th, 1854, made by the Circuit Court of the United States

for the second circuit, in favor of Elias Howe, Jr., and another, against Isaac M. Singer and another.

(Marked Exhibit F.)

The further taking of testimony was then adjourned to August 3d, 1860, at ten o'clock, A. M.

Attest.,

HORACE ANDREWS,

Comm'r of Deeds.

New-York August 3, 1860.

Pursuant to adjournment last noted, Causten Browne, Esq., of counsel for Elias Howe, Jr., and Samuel Blatchford, Esq., of counsel for opponents, appeared, and the examination of witnesses was continued as follows :

WILLIAM M. UDALL, being duly sworn, doth depose and say, in answer to interrogatories proposed to him by Causten Browne, Esq., of counsel for Elias Howe, Jr., as follows :

First Interrogatory.—What is your name, age, residence and occupation ?

A. William M. Udall ; age, 27 ; residence, 52 Harrison street, Brooklyn ; am a shirt front manufacturer.

Second Interrogatory.—Do you use sewing machines in your business, and how many, and of whose make ?

A. I do ; I have twelve of Wheeler & Wilson's.

Third Interrogatory.—How many shirt bosoms or shirt fronts, of two plaits apiece, will one of your machines stitch in a day ?

A. Without power they will average as high as eight dozen a day. I have had as high as twelve dozen a day without power. With power I expect to get at least sixteen dozen a day.

There are forty-two yards of stitching in a dozen two-plait fronts.

Fourth Interrogatory.—In how many minutes can a dozen bosoms be stitched by one of your machines?

A. I have done it in twenty-nine minutes.

Fifth Interrogatory.—How many hands do you employ on one machine, and what do you estimate is the cost of the labor on one machine, or what does it cost per day to run one machine in your business?

A. Say ninety cents per day.

Sixth Interrogatory.—How many two-plait bosoms can a fast sempstress stitch by hand in a day?

A. A half a dozen would be a pretty good day's work with a fine stitch on them.

Seventh Interrogatory.—What do you estimate to be the amount of your present annual business, in dozens, of bosoms?

A. My present business may be said to be a hundred dozen a day.

Eighth Interrogatory.—What proportion of the machine bosom stitching of New-York and the vicinity is done in your establishment, according to your best judgment?

A. I don't believe I do one-thirtieth.

Ninth Interrogatory.—What is the character of the stitching work which your machines do?

A. I consider it to be first rate stitching. It gives very good satisfaction.

WM. M. UDALL.

City and County of New York, ss.:—On this 3d day of August 1860, before me personally came the above-named William M. Udall, and made oath that the foregoing deposition, by him subscribed, contains the whole truth and nothing but the truth.

The said deposition is taken at the request of Elias Howe, Jr., to be used upon the hearing of his application for an extension of his patent of September 10th, 1846, before the

Commissioner of Patents of the United States, at his office, on the 13th day of August, 1860.

The parties opposing were duly notified, as appears by the original notices hereto annexed, and attended by Samuel Blatchford, Esq.

Certified by me,

HORACE ANDREWS,

Commissioner of Deeds.

HERMAN JACOBY, being duly sworn, doth depose and say, in answer to interrogatories proposed to him by Causten Browne, Esq., of counsel for Elias Howe, Jr., as follows :

First Interrogatory.—What is your name, age, residence and occupation?

A. Herman Jacoby; age, 43; residence, 209 East Nineteenth-street; am manufacturer of satchels and pocket books.

Second Interrogatory.—Do you employ sewing machines in your business, and how many, and of whose make?

A. We employ two of them; one A. B. Howe's and one Singer's.

Third Interrogatory.—Without sewing machines could such satchels as you make be made to profit and advantage, and if not, why not?

A. I think they could not, because the same articles are imported, and labor abroad is so much cheaper than it is here. I do not think they are made by hand in this country at all.

Fourth Interrogatory.—Has the application of sewing machines to this business—satchel making—affected the production of leather in this country for that purpose and how?

A. When we first commenced making these satchels, we could not get the leather in this country for the outsides, and we had to import it; now they manufacture it here. We induced manufacturers to make that kind of leather.

Fifth Interrogatory.—How does the stitching done upon American satchels by machinery compare with that done upon imported ones stitched by hand; and which bags, our own or the imported ones, do customers prefer?

A. Those made here by machinery are much nicer. Generally, the customers prefer the American satchels.

Sixth Interrogatory.—Will you produce a satchel made by you by the sewing machine?

A. I do.

(Marked Exhibit G.)

H. JACOBY.

City and Connty of New-York, ss.—On this 3d day of August, 1860, before me personally appeared the above-named Herman Jacoby, and made oath that the foregoing deposition, by him subscribed, contains the whole truth and nothing but the truth.

The said deposition is taken at the request of Elias Howe, Jr., to be used upon the hearing of his application for an extension of his patent of September 10th, 1846, before the Commissioner of Patents of the United States, at his office, on the 13th day of August, 1860.

The parties opposing were duly notified, as appears by the original notices hereto annexed, and attended by Samuel Blatchford, Esq.

Certified by me,

HORACE ANDREWS,

Comm'r of Deeds.

SETH P. CHAPIN, being sworn, doth depose and say, in answer to interrogatories proposed to him by Joel Giles, Esq., of counsel for Elias Howe, Jr., as follows:

First Interrogatory.—What is your name, age, residence and occupation?

A. Seth P. Chapin; age, 42; reside in Brooklyn; my business is machine stitching.

Second Interrogatory.—State what kind of work you do, what machines you use, how many, and whether they work satisfactorily?

A. I do hemming for parasol and umbrella makers, and for house furnishing, such as sheets, pillow-cases, &c., and miscellaneous work generally.

I use Wheeler & Wilson's machines mostly, fifteen to twenty machines, some time ago. I do not use so many at the present time, as those for whom I worked have now got machines of their own. The machines work entirely satisfactorily.

Third Interrogatory.—State whether you formerly worked for A. T. Stewart & Co., and if so, what work did you do for them and to what extent?

A. I have done a great deal of stitching for them, making up sheets, pillow-cases, napkins, towels, table-cloths, &c. It was most of it hemming.

Fourth Interrogatory.—State whether they had large orders to be filled at short notices for work to be done by the sewing machine?

A. They had large jobs for hotels and steamboats to be done at short notice, which they were able to do by sending large quantities of the work to me to be done on the machines. Before, they used to work the girls very late to do what they could of it. I have seen light there as late as twelve and one o'clock at night, in the story where they did that work. They now have machines of their own, and do all their own work.

Fifth Interrogatory.—How many girls is one machine equal to in doing the various kinds of work?

A. On a machine fitted expressly for fine hemming, for instance, one machine and girl to run it, will do the work of fifty girls. In other work it varies from five upwards. Such a machine will make fifteen hundred stitches per minute through the day.

(And on his cross-examination by Samuel Blatchford Esq., of counsel for opponents, as follows :)

First Cross-Interrogatory.—What sort of machine is it that you say will make fifteen hundred stitches a minute through the day?

A. I know several. Perhaps Bond's is the only one that will do it steadily. That will do it the best. Bond's is Wheeler & Wilson's rotary-hook modified. Gibbs' machine will do it. Wheeler & Wilson's rotary-hook will do it, if made with a short light arm, and I think Grover & Baker's will do it in the same way. I think Bond's and Gibbs' are the only machines, as they are now made, that will do it.

Second Cross-Interrogatory.—How many Bond machines have you used?

A. I have used four at a time.

Third Cross-Interrogatory.—What is the highest speed that you made in the machines that you used—I do not mean merely running for a little while for experiment, but working fairly in the course of your business?

A. The highest speed was with the Bond machines, running with a treadle from twelve hundred to fifteen hundred.

S. P. CHAPIN.

City and County of New-York, ss.:—On this 3d day of August, 1860, before me personally came the above-named Seth P. Chapin, and made oath that the foregoing deposition, by him subscribed, contains the whole truth and nothing but the truth.

The said deposition is taken at the request of Elias Howe, Jr., to be used upon the hearing of his application for an extension of his patent of Sept. 10, 1846, before the Commissioners of Patents of the United States, at his office, on the 13th day of August, 1860.

The parties opposing were duly notified, as appears by the original notices hereto annexed, and attended by Samuel Blatchford, Esq.

Certified by me,

HORACE ANDREWS,

Comm'r of Deeds.

GEORGE FISHER, being duly sworn, doth depose and say, in answer to interrogatories proposed to him by Causten Browne, Esq., of counsel for Elias Howe, Jr., as follows :

First Interrogatory.—You stated in your previous deposition in this case, that the Howe sewing machine, upon which you saw some sewing done in New-York City a few days ago, was the original machine which he constructed in your house in Cambridgeport, in 1845. Will you state how early in that year he completed that machine ?

A. It was about the middle of May, 1845, that it was entirely completed.

Second Interrogatory.—How much earlier than that, if it all, was it so far completed as to do experimental sewing successfully ?

A. It took stitches without any feed motion three or four weeks earlier.

Third Interrogatory.—When did he commence the construction of the sewing machine ?

A. It was early in December, 1844.

Fourth Interrogatory.—Please explain what you mean by the machine taking stitches, &c., as used above ?

A. I mean that the needle and shuttle were completed, so that by feeding the cloth along with the hand it would sew. It would take the same stitch that it does now ; not so perfect, of course. What I mean is, that this manner of stitch was taken as early as the middle of April.

Fifth Interrogatory.—You say it would take the stitch at that time, not so perfect as it does now. Did it take it when completed the middle of May as perfect as now ?

A. When it was entirely completed, in the middle of May, it did.

GEORGE FISHER.

City and County of New-York, ss.:—On this 3d day of August, 1860, before me personally came the above-named George Fisher, and made oath that the foregoing deposition, by him subscribed, contains the whole truth and nothing but the truth. The said deposition is taken at the request of Elias Howe, Jr., to be used upon the hearing of his application for an extension of his patent of September 10, 1846, before the Commissioner of Patents of the United States, at his office, on the 13th day of August, 1860.

The parties opposing were duly notified, as appears by the original notices hereto annexed, and attended by Samuel Blatchford, Esq.

Certified by me,

HORACE ANDREWS,
Comm'r of Deeds.

ANNIE DALTON, being duly sworn, doth depose and say, in answer to interrogatories proposed to her by Charles M. Keller, Esq., of counsel for Elias Howe, Jr., as follows:

First Interrogatory.—What is your name, age, residence and occupation?

A. Annie Dalton; age, 30; residence, 16th-street and 3d Avenue, Brooklyn. I make all kinds of patent leather for harnesses, and cover buckles.

Second Interrogatory.—By what means do you sew the leather covering of buckles and stitch the harness?

A. By A. B. Howe's machine. I use two of them.

Third Interrogatory.—How many buckles can you cover with that machine in a week?

A. I do ten gross, one size with another. If they were all small buckles I could do eighteen gross.

Fourth Interrogatory.—Look at Exhibit H. and state whether those are rings and buckles covered by you?

A. They are.

Fifth Interrogatory.—State what size you call these buckles, whether large size, small or average, and what would be a fair week's work of that size of buckles?

A. There are two sizes of buckles and one of rings, large and middle sized buckles. A fair week's work of the large size would be ten gross, and of the middle size, twelve gross.

Sixth Interrogatory.—How many girls would be required to do that amount of work in a week by hand sewing?

A. Eight.

Seventh Interrogatory.—Before this kind of work was done by machinery, were buckles covered with leather in this country, or were they imported?

A. They were all imported.

Eighth Interrogatory.—Look at Exhibit I., and state what it is?

A. We call them winkers, for harness. In this country they are called blinders.

Ninth Interrogatory.—Were those stitched by you; and if so, by what means?

A. They were; by A. B. Howe's machine. They are common ones.

Tenth Interrogatory.—About what amount of labor does it save to do that kind of work on the machine, as compared with hand work?

A. I think it saves more than on the buckles.

Eleventh Interrogatory.—Are buckles covered with leather now imported from Europe?

A. Yes, Sir, some few.

ANNIE DALTON.

City and County of New-York, ss.:—On this 3d day of August, 1860, before me personally came the above-named Annie Dalton, and made oath that the foregoing deposition,

by her subscribed, contains the whole truth, and nothing but the truth.

The said deposition is taken at the request of Elias Howe, Jr., to be used upon the hearing of his application for an extension of his patent of September 10th, 1846, before the Commissioner of Patents of the United States, at his office, on the 13th day of August, 1860.

The parties opposing were duly notified, as appears by the original notices hereto annexed, and attended by Samuel Blatchford, Esq.

Certified by me,
 HORACE ANDREWS,
Comm'r of Deeds.

GOTTLIEB KOHLER, being duly sworn, doth depose and say, in answer to interrogatories proposed to him by Charles M. Keller, Esq., of counsel for Elias Howe, Jr., as follows :

First Interrogatory.—What is your name, age, residence and occupation ?

A. Gottlieb Kohler; age, 34; residence, 199 Grand-street, and occupation, manufacturer of fire caps.

Second Interrogatory.—Look at Exhibit, Eagle 1, A. M., and state what it is.

A. It is the front-piece of a fireman's cap.

Third Interrogatory.—By what means was the stitching done on that ?

A. By A. B. Howe's machine.

Fourth Interrogatory.—How many hands are required to do this kind of work on one machine ?

A. One—a girl.

Fifth Interrogatory.—How many hands would be required to do the same amount of work of this kind by hand, as one girl and one machine can do in the same time ?

A. Six men.

Sixth Interrogatory.—About how many such front-pieces do you manufacture in a year?

A. Six or seven hundred.

Seventh Interrogatory.—Look at Exhibit “Eagle,” and state what it is?

A. It is a fireman’s belt.

Eighth Interrogatory.—State by what means it was sewed?

A. By A. B. Howe’s machine, worked by a girl.

Ninth Interrogatory.—What number of hands would be required to do the same amount of work by hand as is done by the machine and one girl, in the same time, of this kind of work, and what kind of hands—men, girls or boys?

A. It would take seven hands—men.

Tenth Interrogatory.—About how many such belts do you make in a year?

A. Eight hundred to a thousand.

Eleventh Interrogatory.—How many of the machines do you use?

A. One.

GOTTLIEB KOHLER.

City and County of New-York, ss.:—On this 3d day of August, 1860, before me personally came the above-named Gottlieb Kohler, and made oath that the foregoing deposition, by him subscribed, contains the whole truth and nothing but the truth. The said deposition is taken at the request of Elias Howe, Jr., to be used upon the hearing of his application for an extension of his patent of September 10th, 1846, before the Commissioner of Patents of the United States, at his office, on the 13th day of August, 1860. The parties opposing were duly notified, as appears by the original notices hereto annexed, and attended by Samuel Blatchford, Esq.

Certified by me,

HORACE ANDREWS,

Commissioner of Deeds.

THOMAS B. PEDDIE, being duly sworn, doth depose and say, in answer to interrogatories proposed to him by Charles M. Keller, Esq., of counsel for Elias Howe, Jr., as follows :

First Interrogatory.—What is your name, age residence and occupation ?

A. Thomas B. Peddie, of the firm of Peddie & Morrisson ; aged about fifty ; residence, Newark, New-Jersey, and am a manufacturer of trunks, carpet-bags, satchels, &c.

Second Interrogatory.—Do you use sewing machines in your business ; and if yea, how many, and of whose make, and for what purpose ?

A. I do. Singer's, with one or two exceptions. I think we have about six or eight. We use one machine for sewing handles of trunks, and the balance for carpet-bags, satchels, &c.

Third Interrogatory.—About what amount of labor does the use of those machines save for each machine ?

A. It saves the labor of five hands to each machine.

Fourth Interrogatory.—Look at Exhibit G. and state whether the satchels you make are of that kind ?

A. They are.

Fifth Interrogatory.—About how many leather satchels and leather traveling bags, and carpet and enamelled cloth bags, sewed by machinery, are manufactured in the City of New-York and vicinity yearly ?

A. I should say five hundred dozen a week.

Sixth Interrogatory.—Has this given rise to any new branch of manufacture ?

A. Yes. It has given rise to the manufacture of the skins for that purpose, and has increased the manufacture of the American enamelled cloth.

T. B. PEDDIE.

City and County of New-York, ss.:—On this 3d day of August, 1860, before me personally came the above-named

Thomas B. Peddie, and made oath that the foregoing deposition, by him subscribed, contains the whole truth and nothing but the truth.

The said deposition is taken at the request of Elias Howe, Jr., to be used upon the hearing of his application for an extension of his patent of September 10th, 1846, before the Commissioner of Patents of the United States at his office, on the 13th day of August, 1860.

The parties opposing were duly notified, as appears by the original notices hereto annexed, and attended by Samuel Blatchford, Esq.

Certified by me,

HORACE ANDREWS,

Comm'r of Deeds.

JAMES MCCALL, being re-called, doth depose and say, in answer to interrogatories proposed to him by Charles M. Keller, Esq., of counsel for Elias Howe, Jr., as follows :

First Interrogatory.—Will you state the different branches of industry to which the sewing machine is applied, to your knowledge ?

A. Flags, bags, suspenders, buckles, dog collars, horse-blankets, elastics, porte-monies, traveling bags, powder flasks, upholstery, curtain making, umbrellas, harnesses, carriage making, saddle making, carpet making, boots and shoes, stockings, drawers and undershirts, gents clothing generally, hats and caps, gloves, ladies' clothing generally, children's clothing, mail bags, buffalo robes, window shades, mantillas, embroidery, coffin making. I have been told that they are also used in the making of buttons, sails, awnings, hose, horsewhips.

JAMES MCCALL.

City and County of New-York, ss. :—On this 3d day of August, 1860, before me personally came the above-named James McCall, and made oath that the foregoing deposition, by him subscribed, contains the whole truth, and nothing but the truth.

The said deposition is taken at the request of Elias Howe, Jr., to be used on the hearing of his application for an extension of his patent of September 10th, 1846, before the Commissioner of Patents of the United States, at his office, on the 13th day of August, 1860.

The parties opposing were duly notified, as appears by the original notices hereto annexed, and attended by Samuel Blatchford, Esq.

Certified by me,

HORACE ANDREWS,

Comm'r of Deeds.

Counsel for the applicant gives notice to the remonstrants, that at the hearing before the Commissioner, reference will be made to the letters patent granted in England to William Thomas, dated December 1st, 1846, and the disclaimers subsequently made, as the same are published by the British government.

(Counsel for opponents waives the production of the publication.)

And the testimony on the part of Elias Howe, Jr., was thereupon closed.

HORACE ANDREWS,

Commissioner of Deeds.

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